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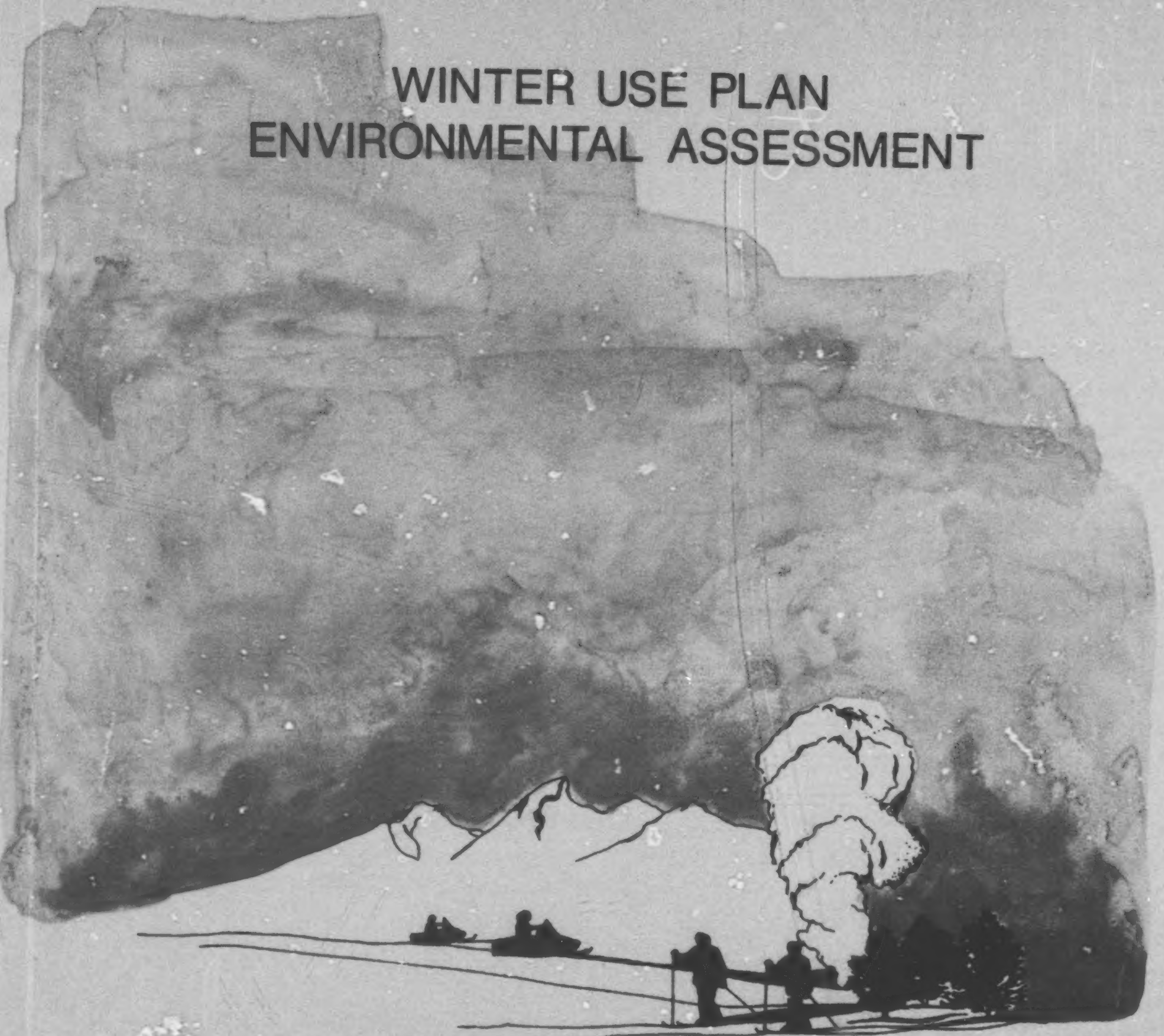
WINTER USE PLAN
ENVIRONMENTAL ASSESSMENT



YELLOWSTONE AND GRAND TETON NATIONAL PARKS AND
JOHN D. ROCKEFELLER, JR., MEMORIAL PARKWAY
WYOMING, IDAHO, AND MONTANA

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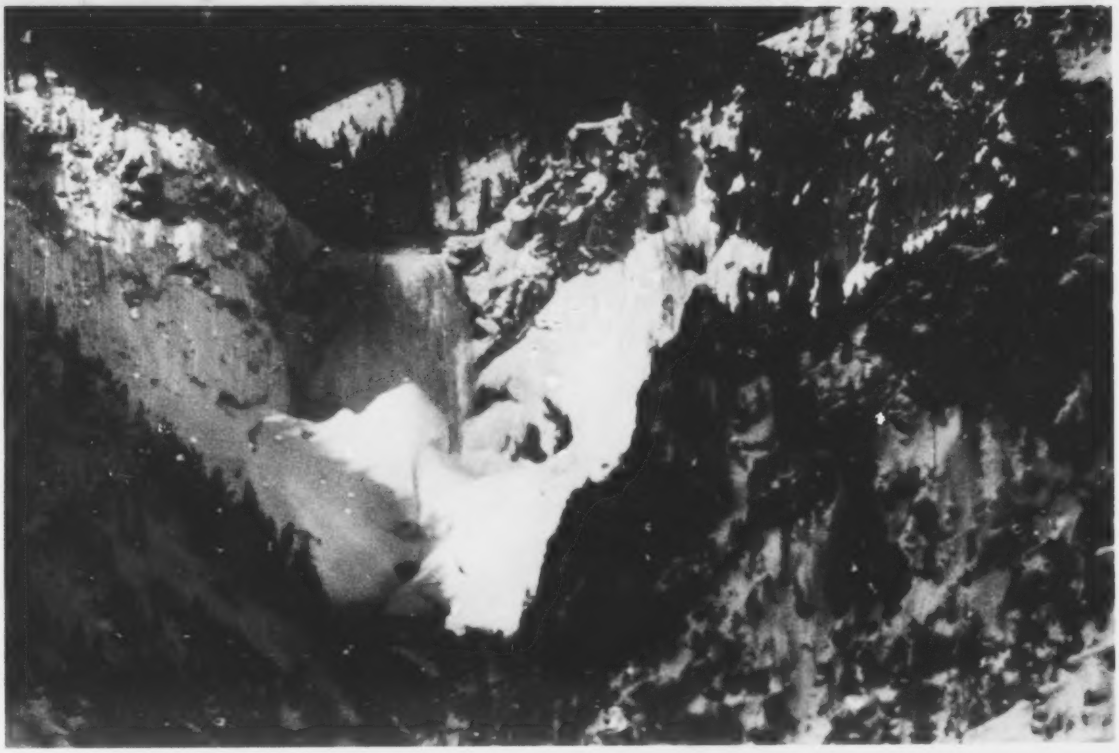
winter use plan
environmental assessment

YELLOWSTONE AND GRAND TETON NATIONAL PARKS AND
JOHN D. ROCKEFELLER, JR., MEMORIAL PARKWAY
WYOMING, IDAHO, AND MONTANA

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE



SUMMARY

WINTER USE PLAN

The National Park Service has prepared a comprehensive plan establishing policies for winter use in Yellowstone National Park, Grand Teton National Park, and John D. Rockefeller, Jr., Parkway. The intent of the plan is to preserve and emphasize the national park experience of viewing scenery, geothermal features, and wildlife during the winter season. Opportunities will be provided for a spectrum of visitor activities, including snowmobiling, cross-country skiing, and snow coach tours, oriented to this experience. A range of opportunities for experiencing quiet and solitude will be available in the parks. These opportunities will complement those found on national forests and other lands outside the parks. The Continental Divide snowmobile trail, proposed by the state of Wyoming, will pass through Grand Teton and Rockefeller Parkway along the roadway of US 89/287 between the east boundary and Flagg Ranch, where it will connect with Yellowstone snow roads. All existing plowed roads and snow roads will be retained; however, the Potholes area will be closed to off-road use of snowmachines, in compliance with NPS national policies. The implementation of the winter use plan will be contingent on funding appropriations from Congress. Plan implementation will be coordinated with the U.S. Forest Service and other land-managing agencies and local communities in the greater Yellowstone area.

Winter use is expected to increase by a moderate amount and then level off over the next five to ten years as the plan is implemented and the new Continental Divide trail comes into use. Staging areas, warming huts, gasoline sales, interpretive facilities, campgrounds, and administrative facilities will be improved and staffing will be increased to accommodate the forecast use levels. The capacity of visitor day-use facilities will not increase significantly under this plan. A *visitor use management* process will be implemented as use increases to ensure that unacceptable impacts on the environment or the visitor experience do not occur. Winter overnight accommodations and food service capacities will not be significantly increased by the plan, but some facilities will be upgraded. The Snow Lodge will be rehabilitated or replaced with a new facility in approximately the same location.

ALTERNATIVES

Three alternatives to this plan were considered during the planning process: Alternative A would place greater emphasis on restoring and maintaining quiet and solitude in the winter throughout the parks. No new snowmobile routes would be designated under this alternative. People using the proposed Continental Divide snowmobile trail would have their machines trailered through Grand Teton and Rockefeller Parkway to reach existing snow roads in Yellowstone. Visitor use in Yellowstone would be regulated through a permit system. Snow roads in Grand Teton would be converted to ski trails, and the Potholes area would be closed to snowmobiling. No overnight lodging would be available in Yellowstone in the winter under alternative A.

Alternative B would place greater emphasis on social visitor experiences. Under this alternative, a new off-road trail would be developed for the segment of the Continental Divide snowmobile trail through Grand Teton and Rockefeller Parkway. The Potholes area would remain open to off-road snowmobiling, and snow roads would be groomed in Grand Teton and Rockefeller Parkway. Winter overnight accommodations would be developed at Canyon Village and Colter Bay, as well as at Mammoth, Old Faithful, and Flagg Ranch.

Alternative C would continue the existing situation, with no action taken to implement new park policies or to develop new facilities.

ENVIRONMENTAL CONSEQUENCES

Winter visitor use in the three parks in 1989-90 was 122,900 visits. This level of annual use would be expected to increase to approximately 131,200 visits by the 1994-95 season if no action was taken by the National Park Service to change the current management (represented by alternative C). Under the plan, use would be expected to increase to about 134,200 visits during the 1994-95 season. Under alternative A use would decrease to approximately 118,200 visits. And under alternative B, use would be expected to increase to approximately 151,200 visits. After these initial adjustments to reflect the increase or decrease in support facilities and regulations associated with each alternative, use would be expected to stabilize and remain relatively constant through the year 2000. Increases in annual visitor use would be expected to increase total annual employment in the greater Yellowstone area, resulting in an increase of $200,000 in employee income even if no additional action was taken (alternative C). In comparison, under the plan, changes in visitor use coupled with increases in NPS and private sector operational expenditures would increase the annual regional employee income by $1.5 million. Under alternative A, the decrease in annual visits would be more than offset by increases in NPS operational expenditures, for a net increase in total annual regional employee income of $0.9 million. And under alternative B annual regional employee income would be expected to increase by $2.1 million.

No substantial adverse effects on wildlife would be expected under the plan or any of the alternatives. The least potential for impact would occur under alternative A. Under that alternative opportunities for people to approach wintering mammals and waterfowl on foot would be greatly reduced, with the result that most human-induced influences on wintering animals would be eliminated. The plan would also reduce this potential for impact, but not to the same degree as alternative A. Under the plan, situations stressful to wildlife would still occur; however, the expected kinds of disturbances have not been found to result in long-term displacement from habitat or other problems that would potentially affect wildlife populations. Under alternative B, reliance on voluntary cooperation might prove inadequate to avoid some minor displacement from habitat if too many people began approaching wildlife on foot; however, no major adverse impacts on wildlife would be expected from the levels of use forecast for that alternative.

Visitors would enjoy the widest possible range of opportunities with the least amount of restriction under alternative B. Under alternative A, greater restrictions would be placed on visitor activities and the range of opportunities would be somewhat reduced. The quality of the visitor experience would generally be best for people seeking solitude under alternative A and best for visitors seeking a more social experience under alternative B. Ample opportunities for solitude would exist under all alternatives, but they would be generally confined to the wilderness zone under alternative B. Snowmachine noise and encounters with other parties would be common in the developed and natural zones in that alternative. The plan would offer a visitor experience between these two alternatives.

No significant cumulative impacts would be anticipated from implementing this plan together with other foreseeable actions. Because this is primarily a rehabilitation plan and would not significantly increase visitor use capacities, no major impacts would be expected to occur either inside or outside the parks.

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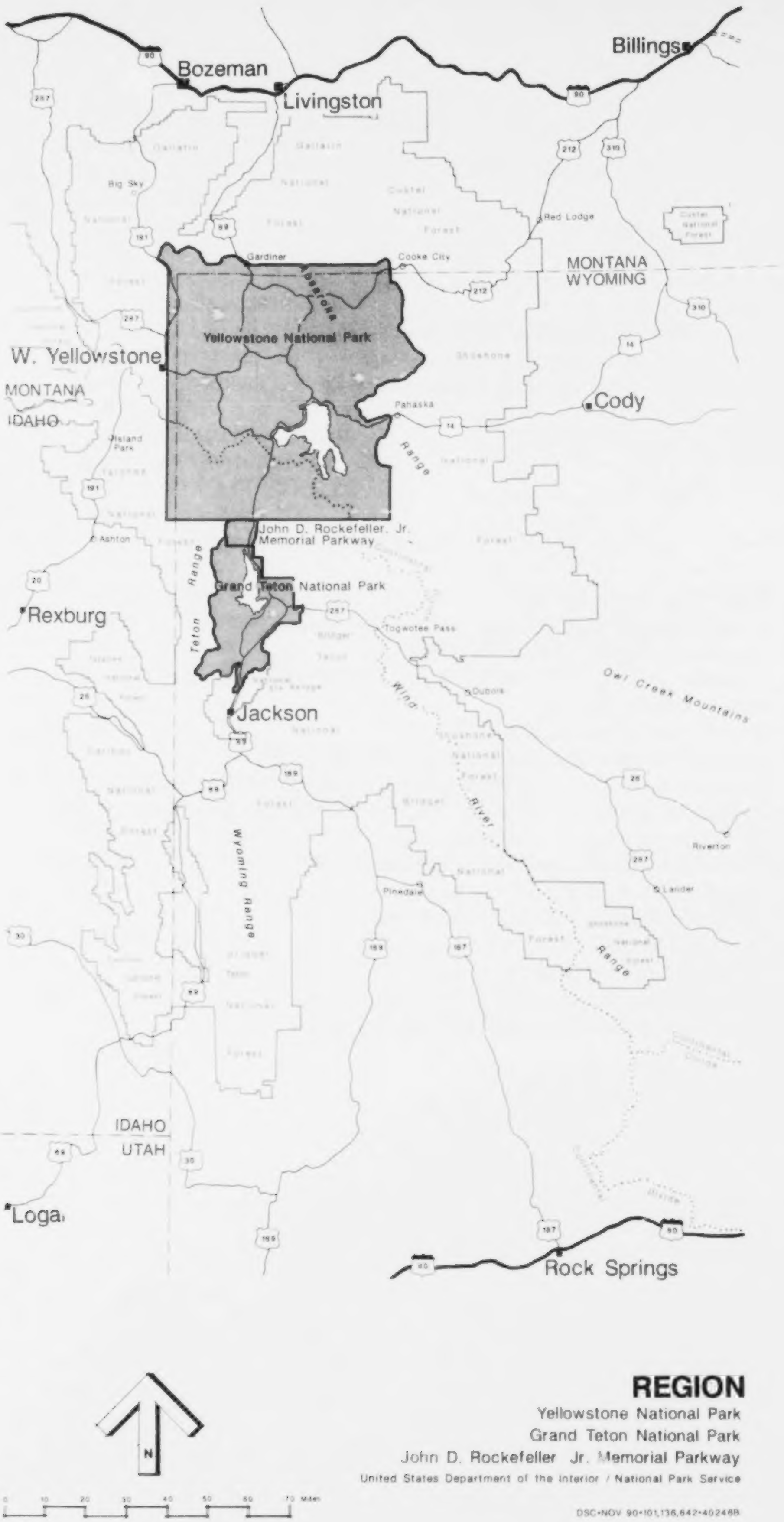

REGION

Yellowstone National Park
Grand Teton National Park
John D. Rockefeller, Jr. Memorial Parkway
United States Department of the Interior / National Park Service

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INTRODUCTION

PURPOSE AND NEED FOR THE PLAN

With the national growth in winter activities such as snowmobiling and ski touring, winter visits to Yellowstone National Park and Grand Teton National Park have risen from virtually none 30 years ago to more than 100,000 per year.[1] The parks' winter activities have become an important part of the region's tourism industry. The growth in winter use has raised concerns about impacts on park resources. The act establishing the National Park Service (NPS) directs the agency to protect park resources and provide for the enjoyment of those resources in a manner that leaves them unimpaired for future generations. The specific acts for the three parks basically reflect this dual mandate. Increasing use has also placed significant demands on the parks' facilities, equipment, and staffs. These demands also affect adjacent national forests and local communities. Until recently, as increased and new uses appeared, they were accommodated or controlled in accordance with established NPS policies with little additional funding or personnel. It is now apparent that winter activities are an integral part of the visitor experience in the greater Yellowstone area and that more specific policies and management direction are needed to guide winter use in the parks and protect sensitive resources.

This plan jointly covers Yellowstone, Grand Teton, and the John D. Rockefeller, Jr., Memorial Parkway (see Region map). Activities in these parks are integrally related during winter. For example, the Flagg Ranch developed area in Rockefeller Parkway serves as a major staging area for oversnow trips into Yellowstone. The recently proposed long-distance Continental Divide snowmobile trail would traverse all three parks. Therefore, a regional park planning approach is warranted. Activities in the parks are also closely related to activities in adjacent national forests throughout the greater Yellowstone area. However, the intent of this plan is to cover only the actions in the national parks. This plan does not prescribe activities for adjacent national forest lands, but it considers how winter activities in the parks and the forests affect and complement each other. Coordination for plan development was accomplished through the Greater Yellowstone Coordinating Committee and local park and forest offices (see "Consultation and Coordination"). Plan implementation will also be coordinated with the U.S. Forest Service, other concerned agencies, and local communities.

This document describes and analyzes a winter use plan and three alternatives for managing winter use. These four possible plans were developed from a preliminary list of alternatives that was reviewed by the public and other agencies operating in the greater Yellowstone area in the fall of 1989. The plans are oriented around a series of issues identified at the start of the planning process and reviewed by the public in the spring of 1989. The proposed solutions to these issues are generally of a policy nature and do not include site-specific development plans. The environmental assessment included in this report was prepared in compliance with the requirements of the National Environmental Policy Act, the Endangered Species Act, the National Historic Preservation Act, and other legal compliance policies and procedures. A draft *Winter Use Plan and Environmental Assessment* was reviewed by the public in the summer of 1990. Because of the general nature of the plan, some of the proposed actions will require additional site planning and environmental compliance before they are implemented. This plan is consistent with the master plans for Yellowstone and Grand Teton, the general management plan for Rockefeller Parkway, and the current management plans for the adjacent national forests. Implementation of the *Winter Use Plan* will occur through more detailed resource management, development, and park operations plans, which will also be coordinated with the U.S. Forest Service and other agencies in the greater Yellowstone area. All proposals requiring significant funding are contingent on appropriations from Congress.

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[1] The winter use season is defined in this plan as December 1 through March 31.

PLANNING ISSUES/PROBLEMS

Most Yellowstone roads and several Grand Teton roads are not plowed in the winter. Access to many areas is possible only by cross-country skiing, snowmobiling (using private and rental vehicles), and snow coach tours (under concession contracts and special-use permits). These winter activities have increased dramatically over the past 30 years. The winter visitor experience in the greater Yellowstone area has been described as a unique experience to be found nowhere else in the country (and maybe the world). This plan considers the special character of the experience in the parks and determines ways to retain and enhance it. The plan provides guidelines for desired visitor activities, identifies strategies for managing use within identified objectives for capacities, and addresses needs for winter interpretive services and visitor protection. The plan also determines what concession services are necessary and appropriate for winter use in the parks, recognizing that concession contracts are currently in effect and that major changes, if any, will normally be implemented when those contracts expire. The plan recognizes that winter use in the parks plays a special role in the region and affects and is affected by winter use in adjacent areas. The plan discusses the need to coordinate with managers of adjacent national forests and others in the greater Yellowstone area.

The impact of winter use on wildlife populations has been one of the major concerns expressed by the public during this planning project. Many animals travel on snow roads because it is easier than moving through deep snow. This frequently causes conflicts with snowmachine traffic on park roads.[1] Winter range differs from summer range and tends to be concentrated along open rivers and in lower areas accessible by plowed roads or snow roads. Many species are in a sensitive state during the winter, and the amount of energy they have to expend may become critical to their survival. The plan assesses available research data and future needs, and evaluates policies to reduce or eliminate impacts on wildlife populations.

Staging areas, such as those at the east and south entrances to Yellowstone, become very congested during the winter. Existing staging areas at the west and east entrances are outside the parks and affect local communities and adjacent national forests. The plan identifies major access points and recommends how demands for parking can be met.

The state of Wyoming has proposed a 370-mile-long Continental Divide snowmobile trail that would connect existing national forest trails in the Togwotee Pass area and the southern end of the Wind River Range with trails in Yellowstone. While most of this trail already exists, there are some missing segments, including one through Grand Teton and Rockefeller Parkway. The originally requested route through these parks would require a new 30-mile off-road

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[1] In this document the term snowmachine refers to snowmobiles, snow coaches, and snowplanes.

MAPS

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snowmobile trail. Such a trail would be a departure from NPS management policies and regulations, which restrict snowmobiles to routes used by motorized vehicles during other seasons. Some people have expressed concern over the potential for effect on sensitive wildlife areas, such as the Oxbow Bend on the Snake River. The plan analyzes the requested route and other alternatives and determines whether the proposed trail is appropriate for park lands. The National Park Service is also reevaluating the off-road Potholes snowmobile area at Grand Teton (currently excepted from NPS policy through a special regulation).

The winter use plan also includes guidelines about signing and the maintenance of winter travel routes throughout the three-park study area. The travel routes in the study area currently receive different levels of grooming and signing. Ski trails near developed areas are marked and groomed in Yellowstone but not in Grand Teton. Snowmobile routes are also groomed in Yellowstone but not in Grand Teton. Winter trail signing throughout the greater Yellowstone area is inconsistent.

Noise is a significant concern expressed by many people. Snowmachines have a reputation for being noisy vehicles, capable of disrupting the "quiet of winter" that is a major part of the experience for many winter users. People are also concerned that noise disturbs wildlife during the critical winter months. The winter use plan analyzes the noise issue and recommends various approaches to addressing these concerns.

Winter access to the interior of Yellowstone is significantly more expensive for park visitors than summer access. Snowmobiles are relatively expensive to own and operate, and rental costs are moderately high. The concessioner-operated snow coaches are also expensive to run and costly for the visitor (relative to summer mass transportation), yet they provide the only transportation option for many people. The plan assesses possibilities for expanding snow coach tours and ways of making snow coach access to Yellowstone's interior more affordable to all visitors.

The Snow Lodge at Old Faithful was originally constructed as a summer employee dorm and has since been converted for visitor accommodations in the winter and summer. The lodge is completely booked throughout the winter, and demand exceeds the capacity. The restaurant is too small to accommodate everyone who wants to eat there, and the dining area is poorly insulated from kitchen noise. The employee dining room is a temporary modular structure attached to the lodge building. The small lobby/seating area becomes very congested and noisy. Interest has been expressed in opening additional areas in Yellowstone, like Canyon Village, for winter overnight use. Winter lodging facilities are expensive to operate because of the costs of oversnow transportation, severe weather conditions, and high heating requirements. Winter lodging is available at gateway communities in the greater Yellowstone area, and lodging facilities in the parks affect and are affected by these nearby facilities. The plan assesses existing and possible additional winter accommodations and services to determine if they are necessary and appropriate in the interior of Yellowstone and at other developed sites in the three-park study area.

Warming huts are located along snow roads at several developed areas in Yellowstone. They are highly valued by snowmobilers, especially during inclement weather. Snack bars or vending machines are provided in some huts. The huts at Canyon and Madison are trailers that are brought in during winter. They become very crowded at times and create seasonal staffing demands for moving them in and out. Some visitors consider the huts to be inappropriate for a primitive winter experience in the park. The plan addresses the need for additional warming huts or replacement huts in the parks.

Most administrative support facilities (ranger stations, maintenance areas, and employee housing) were developed for summer use. Some have been adapted for winter use with difficulty and mixed results. The need for support facility improvements is assessed in the plan.

National Park Service staff are needed to provide services to visitors and maintain facilities in winter. The plan identifies staffing levels necessary to operate the parks based on the facilities and services identified in the plan. Winter operations in the parks are expensive for the Park Service and its concessioners because of remote employee duty stations, oversnow transportation, and severe weather conditions. As winter use has grown in the parks, annual operating budgets have been stretched to accommodate the expanded seasons. The winter use plan identifies annual operating costs associated with the recommended winter use strategy.

AREA DESCRIPTION

GREATER YELLOWSTONE AREA

Yellowstone National Park's famous geyser basins and canyons are part of a high forested plateau near the headwaters of the Yellowstone and Snake rivers. The park lies mostly in the northwestern corner of Wyoming but overlaps into both Montana and Idaho. Grand Teton National Park, 6 miles south of Yellowstone, includes major portions of the Teton mountain range and the valley called Jackson Hole. The John D. Rockefeller, Jr., Memorial Parkway is a separate unit of the national park system consisting of land connecting the south entrance of Yellowstone with Grand Teton.[1] Rockefeller Parkway is administered by the superintendent of Grand Teton National Park.

The three parks are largely surrounded by public land, including the Gallatin, Custer, Shoshone, Bridger-Teton, Targhee, Beaverhead, and Caribou national forests. These areas plus the National Elk Refuge and the Red Rocks National Wildlife Refuge make up the 11.7-million-acre *greater Yellowstone area*. Cooperative agreements and interagency planning and coordination aid in management of the area as an ecological unit while also recognizing the different mandates of the various land-managing agencies.

Park gateway towns are Gardiner, Cooke City, and West Yellowstone in Montana, and Cody, Dubois, and Jackson in Wyoming. Lodging and a full range of services are provided. These services complement the limited services provided in the parks, and many are highly dependent on winter activities and use levels at the parks.

Plowed highways in the greater Yellowstone area provide car access to the parks. From the north plowed highways lead to Gardiner and the park headquarters at Mammoth, and through the northeast part of Yellowstone to Cooke City; from the east the highway is plowed to Cody and Pahaska Tepee (3 miles east of the Yellowstone east entrance); from the west it is plowed to West Yellowstone; and from the south to Dubois, Jackson, and Flagg Ranch (2 miles south of the Yellowstone south entrance). US 191 in the northwest corner of Yellowstone is also plowed through the park. The Teton park road provides access to trailheads in Grand Teton near the park headquarters at Moose. Airlines provide scheduled service to Bozeman, Cody, and Jackson in winter.

The greater Yellowstone area has developed a national reputation as a winter recreation center offering activities on national park and national forest land, including snowmobiling, snow coach tours, downhill skiing, cross-country skiing, wildlife viewing, and winter sightseeing. A broader range of winter recreational opportunities are found on national forest lands than in the parks (see "National Forest Facilities and Use," below).

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[1] The road between West Thumb and the south boundary of Grand Teton National Park is also referred to as "the Rockefeller parkway"; however, for the purposes of this document, the name applies only to the portion of land between Yellowstone and Grand Teton.

NATURAL RESOURCES

The following discussions contain many general statements about the greater Yellowstone area or somewhat more specifically about Yellowstone and Grand Teton. General statements about Grand Teton also apply to the Rockefeller Parkway unless noted.

Physiography

The Yellowstone plateau is of recent volcanic origin. Its average elevation is 8,000 feet, but higher mountains surround it on three sides. The Teton mountain range, which rises to the south out of the plateau, is one of the youngest mountain ranges in the contiguous 48 states. The scenery changes between the two parks from the rugged mountains of northern Yellowstone, to the rolling and predominantly forested Yellowstone plateau country, to the stark relief of the Teton peaks rising abruptly 6,000 to 7,000 feet from the flat, mostly treeless floor of Jackson Hole.

Climate and Weather

The area is noted for long, cold winters, which on the average last from November until April. Snowfall ranges from 80 inches per season at Mammoth up to 200-400 inches at higher elevations. January temperatures in both parks range from average daytime highs of 20 degrees F. to nighttime lows of -20, although lows often hit -40. On average about one year in ten is dry, with marginal snow conditions through the winter. However, there were several dry winters during the 1980s.

Thermal Areas

Yellowstone contains three-fifths of the world's geysers and countless examples of other geothermal features, such as hot springs, travertine terraces, mud pots, and fumaroles. Thermal areas influence Yellowstone's flora and fauna in the winter. Hot water creates microclimates that allow certain plants and insects to remain active and growing. Warm ground keeps areas relatively free of snow, enabling elk and bison to feed in the otherwise snowbound interior of Yellowstone. Hot springs flowing into lakes and rivers keep some waters from freezing, increasing habitat for waterfowl and bald eagles during the winter.

Water Resources

The Yellowstone River and Yellowstone Lake are the dominant water features in Yellowstone National Park. The river headwaters are southeast of the park in a wilderness area of the Bridger-Teton National Forest. After collecting water from many tributaries, the river exits the park at the town of Gardiner, along the north boundary. Numerous lakes and unnamed creeks, potholes, and wetlands dot the area. Riparian wetlands provide important wildlife habitat year-round along the Yellowstone River, Pelican Creek, and many other water bodies. Any waters remaining ice-free due to river current or runoff from thermal features provide important winter habitat for waterfowl, bald eagles, and water-dwelling mammals.

The Snake River flows along the south boundary of Yellowstone, past the park's south entrance, into the Rockefeller Parkway and Grand Teton National Park, then into Jackson Lake. The Snake River above and below Jackson Lake remains ice-free, providing waterfowl and bald eagle habitat. Jackson Lake freezes over in mid-December on the average. Travel on the lake ice is unpredictable due to overflow flooding concealed under the snow. The Buffalo Fork of the Snake River enters Grand Teton from the east at Moran Junction. The last 10 miles of the Buffalo Fork have a low gradient and meanders with extensive adjacent wetlands.

Area waters are noted for pristine quality and are extremely important to both the natural environment and the regional economies of downstream areas.

Floodplains appear fairly well defined, although the Federal Emergency Management Agency has not published national flood insurance rate maps for the area. Except for Flagg Ranch, existing developed areas are located above historic floodplains. The area is not known for flash-flooding.

Air Quality

Yellowstone and Grand Teton have nearly pristine air quality as defined in the Clean Air Act of 1977. They are mandatory class I areas, where air quality degradation is unacceptable. Smoke and haze from wood-burning stoves and vehicles, including snowmachines, is sometimes visible in valleys during temperature inversions. Air quality monitoring stations in the parks are located at Mammoth, Tower Junction, Lake, and near Moose. National forests surrounding the parks have both class I and class II designated areas.

Soils

Yellowstone soils are mostly derived from volcanic rhyolite parent material, which has degraded into particles ranging from boulders to clay. Localized lenses of lake-deposited clays exist. Grand Teton soils are generally derived from Pleistocene glacial deposits of metamorphic parent material. The treeless flats of Jackson Hole are underlain by porous soils derived from water-transported gravelly glacial outwash deposits. Forested areas are generally underlain by soils derived from glacial moraines. Floodplain-deposited silts support riparian cottonwood/blue spruce forests or willow fields.

Vegetation

The plants of the greater Yellowstone area are typical of the central Rocky Mountains. Over 1,000 species occur in communities ranging from alpine tundra above timberline to sagebrush steppe in the northern portions of Yellowstone and the flats of Jackson Hole.

Upland forests are dominated by lodgepole pine, subalpine fir, Douglas-fir, whitebark pine, and occasional stands of aspen. Typical upland understory plants are grouse whortleberry, elk sedge, kinnikinnick, fescue, and bluejoint reedgrass.

Both parks have large treeless grass/shrub steppes of sagebrush, rabbitbrush, forbs such as balsamroot and lupine, and grasses such as Idaho fescue, Great Basin wild rye, and bluebunch wheatgrass.

Wetland vegetation types vary with hydrological conditions and include floodplain forests of blue spruce and cottonwood, willow fields, seasonally wet sedge meadows, and ponds and stream banks with emergent seasonal and persistent vegetation.

Wildlife

Most bird species in the greater Yellowstone area migrate south during winter. Common wintering birds are chickadees, ravens, Clark's nutcrackers, magpies, Canada geese, Barrow's and common goldeneyes, common mergansers, trumpeter swans, and bald eagles (see "Threatened and Endangered Species," below).

Over 60 species of mammals reside in the area throughout the year. Among the greatest attractions are the large ungulates, including bison, elk, moose, mule deer, bighorn sheep, and pronghorn (antelope). Winter conditions cause many of these ungulates to concentrate in lower areas with less snow. Both black and grizzly bears are found in the area (see "Threatened and Endangered Species"). Other mammals present in the parks include coyotes, beavers, river otters, porcupines, skunks, badgers, snowshoe hares, tree squirrels, numerous other rodent species, mountain lions, and wolverines.

Bison are found in Yellowstone in three herds: Lamar Valley, Mary Mountain (from Hayden Valley to the Madison River), and Pelican Valley. Approximately 2,400 animals were counted in the winter of 1990. About 100 more bison winter in Grand Teton or the National Elk Refuge. Bison are better adapted for deep snow and extreme temperatures than other ungulates. Populations in both areas are generally increasing.

Wintering elk are found on Yellowstone's northern range (the northern portion of the park along the Lamar, Gardner, and Yellowstone rivers), along the Madison, Firehole, and Gibbon rivers, and along the Gallatin River. The elk population count on the northern range increased dramatically from about 4,300 in 1968 to about 19,000 in 1987-88, then decreased by about 25 percent in 1988-89. The increase was due to changes in NPS management and a succession of mild winters (Despain et al. 1986). A combination of drought and fires followed by a winter of more than average severity may have been the cause of the heavy one-year decline. Some of the elk from this population leave the park and are hunted. The hunted animals tend to run great distances when persons on foot approach them in open areas (Cassirer and Ables 1989). Elk populations along the Madison, Firehole, and Gibbon rivers had been stable at 800-1200 animals until the winter of 1988-89, when there was a heavier winter kill of about one-third to one-half of the population. This part of the park has deeper snow than the northern range; consequently, thermal areas with snow-free vegetation or shallow snow are very important winter habitat. The elk in this area are not hunted and are habituated to (tolerant of) people.

Grand Teton has a wintering population of about 200-400 elk, found mainly in the Snake River floodplain and along the east-side foothills. These animals are hunted and intolerant to approach by people. The area is better known for the fall/spring migration of elk from the park and forest highlands along the north and east edges of Jackson Hole to the National Elk Refuge. About 7,000 to 10,000 elk spend the winter on the refuge.

Moose in Yellowstone are found mainly on the northern range and along the upper Yellowstone River. An estimated 200 moose were on the northern range during the 1970-80 period. Moose are frequently found in floodplain willow vegetation; however, they also use coniferous-forest slopes (Despain et al. 1986). At Grand Teton moose are numerous on floodplains of the Snake and Buffalo Fork rivers and occur to a lesser extent on upland forested slopes. About 450-700 moose spend the winter in Grand Teton.

Bighorn in Yellowstone are most frequently observed on the slopes of Mount Everts east of the Gardner River. Isolated bands also spend winters at higher elevations scattered about the northern portion of the park. About 450 bighorn were found in northern Yellowstone during the 1970s, but the population declined because of disease in the early 1980s. The population is slowly recovering; some 247 individuals were counted in 1986 and 293 in 1988 (Despain et al. 1986). In Grand Teton bighorn are found in isolated bands at high elevations along the west boundary and among the major peaks. A small band moves down the Gros Ventre River and uses the cliff area east of Kelly.

Mule deer and pronghorn generally move out of both parks to lower elevations for the winter.

The following general observations by experienced wildlife researchers and managers in the area influenced the proposed management policy:

> Ungulate populations on Yellowstone's northern range are at very high levels relative to pre-1970, when winter recreational use was extremely low and animals in both parks were largely isolated from humans during the winter. Ungulate populations elsewhere in Yellowstone and Grand Teton are generally stable at numbers comparable to pre-1970 levels. Winterkill in 1989 reduced wildlife populations significantly throughout Yellowstone. This resulted from a normal winter, more severe than several previous mild winters with low snow, compounded by the fact that vegetation conditions were suffering from an extended period of drought. While this does not mean that winter use has no effect on ungulates, it appears that factors such as weather, range conditions, disease, and outside hunting pressure are far more likely to determine population numbers than winter recreational travel.
>
> Animals vary from area to area in their reaction to people due to different terrain and vegetation cover conditions and degree of habituation to humans.
>
> Wildlife populations that are not hunted appear less likely to flee from approaching people.
>
> Because their movements are more predictable and confined to one corridor, skiers restricted to trails disturb animals less than people approaching animals at random.

Some additional conclusions can be drawn from published research on the effects of winter use in northern forested areas in Alberta, Minnesota, Wisconsin, Maine, and Yellowstone:

Large ungulates (deer, moose, and elk) that are not hunted move approximately 200-500 feet away from snowmobile and ski trails during heavy recreational use periods, then return to feed in and occupy habitat adjacent to the trails during low use periods (Aune 1981; Cole 1977; Dorrance et al. 1975; Eckstein et al. 1979; Ferguson and Keith 1982).

Persons on foot (hikers, skiers, or snowshoers) seem to have a greater effect on animals than snowmobilers do, causing them to run sooner and farther than they run from snowmobiles (Aune 1981; Eckstein et al. 1979; Freddy et al. 1986).

In late winter the mobility of animals is sometimes reduced by deep snow and a weakened physical condition, giving the impression of increased tolerance to humans (Richens and Lavigne 1978). However, a study of captive white-tailed deer fitted with heart-rate monitors demonstrated that the animals' pulse rates increased when a snowmobile passed, even when the animals did not stand up or move away (Moen et al. 1982).

Threatened And Endangered Species

Four animal species protected by the Endangered Species Act of 1973 are found in the greater Yellowstone area. These are the endangered bald eagle *(Haliaeetus leucocephalus),* the endangered peregrine falcon (*Falco peregrinus*), the endangered whooping crane (*Grus americana*), and the threatened grizzly bear (*Ursus arctos horribilis*). Historically, the endangered wolf (*Canis lupus*) occupied the study area, but in recent years no wolves have been seen in the greater Yellowstone ecosystem. No listed threatened or endangered plant species exist within the parks.

The bald eagle resides year-round in both parks. Resident bald eagles begin defending territories in late January, display courtship behavior in February, and begin laying eggs and incubating in March. They are sensitive to disturbance by humans from late winter through spring and early summer. Wintering bald eagles rely on three major types of food: waterfowl, carrion, and fish. Breeding populations in both parks appear to be stable or slightly increasing.

About 20-40 bald eagles, including 14 nesting pairs, spend part of the winter in Yellowstone. Eagle activity is greater along streams that remain ice-free and in thermal-influenced areas or windswept meadows where snow is less deep and large mammals gather. Eagles in Yellowstone appear to have adapted to human presence on the groomed snow roads passing through the geyser basins. About five or six nesting pairs of bald eagles spend the winter in Grand Teton along the Snake River and its tributaries. During the winter, rivers with open water provide vital foraging habitat.

A working team to study the bald eagle population in the greater Yellowstone ecosystem was organized in 1981. The group includes representatives of both parks, adjacent national forests, state fish and game departments, Montana State University, the U.S. Fish and Wildlife Service, and the Bureau of Land Management. This group has prepared a management plan and cooperated on research and monitoring efforts.

Peregrine falcons and whooping cranes migrate from the area by late fall and do not return until late spring, after the end of the winter use season.

Grizzly bears occupy most of Yellowstone, Rockefeller Parkway, and the northern portions of Grand Teton. The Interagency Grizzly Bear Committee oversees management of the species in the greater Yellowstone area, including the parks and adjacent national forests. The 1982 U.S. Fish and Wildlife Service *Grizzly Bear Recovery Plan* for conservation of the species in the 48 states was approved by the committee in 1982. All of Yellowstone and the Rockefeller Parkway and much of northern Grand Teton are within the grizzly bear recovery zone boundary.

In 1986 the committee published the *Interagency Grizzly Bear Guidelines,* which identify land uses appropriate for species conservation. Determinations of appropriate uses are based on what the guidelines define as three different management situations. Situation 1 areas are the most important habitat for species survival, where the greatest use restrictions are appropriate. Situation 2 areas are lower quality habitat, where fewer restrictions apply. Situation 3 areas include recreational developments and adjacent lands within 250 yards, where free-ranging grizzlies are not tolerated.

Grizzly bears generally den by late November or early December and emerge in spring around mid-March. Although bears are not true hibernators and may be active during the winter months, they are generally sedentary during the majority of the winter season covered by this plan. The time frame of potential use conflicts is early December and the month of March. Bears usually emerge from dens during mid-March, but they may emerge earlier depending on elevation, slope, aspect, weather conditions, and the individual bear's sex, age, condition, and behavioral patterns.

Both late fall and spring periods are important to survival. The late fall to early winter period is important for den site selection and the accumulation of fat reserves. The late winter to early spring period is a crucial feeding time when the bears are highly dependant on preferred spring ranges providing succulent herbaceous plants and winter-killed carrion, which is an important source of protein. Also, bears sometimes prey upon winter-weakened animals during this period. Bears have lost 8-40 percent of their fall body weight by the time of den emergence and must feed undisturbed in preferred areas to meet nutritional requirements.

Studies indicate that grizzly bears avoid humans using roads and developments even when carrion is available in those corridors (Mattson and Henry 1986-88). Adult females and young grizzlies, especially, need carrion and suffer most from its exclusion from their diet. The viability of the Yellowstone grizzly is contingent on the survival of adult females. The females, unlike adult males, constantly experience an ongoing energy crisis related to weights, mortality, and fecundity. When adult females are excluded on a regular basis from carrion sources, higher mortality and lower fecundity rates can be expected.

A description of procedures being taken to comply with the Endangered Species Act is contained in the "Consultation and Coordination" section of this document.

Species of Special Management Concern

The trumpeter swan (*Cygnus columbianus*) and lynx (*Lynx canadensis*) are winter residents of special management concern in Yellowstone, Grand Teton, and the state of Wyoming. Trumpeter swans remain in the area year-round and are joined by winter migrants. About nine pairs nest in Yellowstone, and in winter the population increases to somewhere between 40 and 300, depending on the number of migrants spending at least part of the year there. Grand Teton has an average of six nesting pairs of trumpeter swans and up to 40 wintering pairs. The slow flowing open water habitat required for swan survival is increased by thermal activity, but even in Yellowstone it becomes scarce during the coldest part of winter. Swans require a long season for the young to mature enough to fly, and the area's severe climate makes this marginal range. Severe weather is the primary cause of poor swan reproduction in Yellowstone.

Lynx are seldom seen and use habitat in dense forests away from traveled areas.

Ross's bentgrass (*Agrostis rossiae*), a plant endemic to the thermal areas of Yellowstone, is also of special management concern and under consideration for possible listing by the U.S. Fish and Wildlife Service. Current development and use do not affect this species.

The common loon (*Gavia immer*), osprey (*Pandion haliaetus*), American white pelican (*Pelicanus erythrorhynchos*), harlequin duck (*Histrionicus histrionicus*), and Caspian tern (*Sterna caspia*) are also of special management concern but are not present in winter.

CULTURAL RESOURCES

Native Americans occupied the greater Yellowstone area beginning approximately 8,000 to 10,000 years ago. Archeological sites document hunting and gathering camps, buffalo jumps, and obsidian gathering areas. Some specific archeological sites have been recorded; however, comprehensive archeological surveys of the three parks have not been completed.

Yellowstone was established by Congress in 1872, becoming the first national park. The Army administered the park from 1886 until a civilian National Park Service was established in 1916. Many of the facilities still in use were designed and built by concessioners around the turn of the century, by the Army prior to 1916, and by the National Park Service during the first two decades of its jurisdiction. Many of the buildings, bridges, and other structures built during this era embody the rustic style of park architecture popular prior to 1940. Stonework, massive timbers, and decorative woodwork were used in a way to make buildings compatible with the natural setting. Examples of rustic architecture are the Old Faithful Inn and the museum at the Norris geyser basin.

Yellowstone cultural resources that are designated national historic landmarks are the museums at Norris, Madison Junction, and Fishing Bridge; the Old Faithful Inn; and the northeast entrance station. Resources listed on the National Register of Historic Places are the Old Faithful Historic District, the Obsidian Cliff kiosk, the Lamar buffalo ranch, and the Lake fish hatchery district. The Lake Hotel has been determined eligible for listing on the National Register of Historic Places. The Snow Lodge is in the Old Faithful Historic District but is listed as a noncontributing structure. Facilities currently open in the winter that are eligible for listing on the National Register of Historic Places are the Mammoth Hot Springs Hotel (Mammoth Motor Inn) and dining building, the Albright Visitor Center, the park headquarters area (Fort Yellowstone Historic District), and the West Thumb ranger station (now used as a warming hut).

A historic resource study for Yellowstone National Park, which is now being written, will address all the park's historic resources under one of four historic contexts: concessions, park administration, conservation, or architecture. A national register multiple property nomination will follow the completion of each historic context. The context for the history of concessions is scheduled for completion during 1991. Until that process is completed or an interim determination of eligibility for national register significance is made, all properties 50 years or older are considered potentially eligible for listing on the National Register of Historic Places.

Grand Teton National Park was established in 1929 and enlarged in 1950. In Grand Teton, where ranching and tourism preceded establishment of the national park, the remaining rustic and/or historic buildings are associated with pioneer ranching, dude ranching, private estates, and early administration by the Forest Service and Park Service. Five historic buildings (or complexes) are currently listed on the National Register of Historic Places. These are the Cunningham cabin, Menors Ferry, the Maud Nobel cabins, Chapel of the Transfiguration, and Leek's Lodge. The park's remaining historic resources have recently been evaluated, and more than 138 structures determined eligible are now being nominated for listing on the National Register. None of the above listed or eligible buildings are open to the public in the winter for lodging or visitor facilities.

No known cultural resources in the Rockefeller Parkway are listed on or determined eligible for the National Register of Historic Places. The Flagg Ranch complex was evaluated in 1988 and determined to be not eligible for listing on the National Register.

The procedures for compliance with the National Historic Preservation Act are described in the "Consultation and Coordination" section of the this document.

EXISTING VISITOR USE

Visitor Activities and Characteristics

The data reported in this section were derived primarily from a winter visitor use study conducted in the three-park area during the 1988-89 season (NPS 1990).

Of the Grand Teton visitor groups responding to the survey, roughly half snowmobiled and half cross-country skied. Some of these groups did both activities, while fewer than one-fifth did neither. Of Yellowstone visitor groups, roughly three-fourths snowmobiled and one-fourth skied. Again, few visitors did neither, and some visitor groups did both.

Group size averaged 5.2 persons, but among visitors who only went to Grand Teton the average was 3.4. Snowmobiling groups were much larger than cross-country skiing groups. The size of nonlocal snowmobiling groups was almost three times greater than what it had been in 1977. About half of all visitors were traveling with friends. This group composition was different from what occurs in summer, when groups are predominantly made up of family members.

About 5 percent of those entering the three parks were on guided tours. Guided tours were least used by cross-country skiers and most used by visitors who neither snowmobiled nor skied. Use of guide services by snowmobilers was still relatively low but was twice as great as it had been in 1977.

The average visitor age was 38. Most visitors were middle-aged or older. In contrast with summer visitors, relatively few winter visitors were children or young adults.

About three-fourths of all winter visitors were repeat visitors who had been in the park before in either summer or winter. For all winter visitors the average number of visits was 16, and 7 of those had occurred in winter. Virtually everyone was at least traveling with a repeat visitor. About half of all winter visitors had previously visited in the winter. For day users and local residents (both strongly represented in Grand Teton) the average number of visits was more than 40, including about 18 in winter. Visitors who went only to Grand Teton had made an average of 11 winter visits. In comparison, about half of all summer visitors have previously been to the parks.

Nearly half of all visitors came from Idaho, Montana, and Wyoming. Local residents were present in one-fourth of all Yellowstone groups and more than one-third of the Grand Teton groups. The concentration of regional and local visitors was less than it had been in the winter of 1977; however, it was still much higher than in summer, when a high percentage of visitors come from all over the country.

Overnight users, as defined in the survey, identified visitors who procured overnight accommodations in the parks or nearby gateway communities. Many of these people stayed in West Yellowstone or Jackson.[1] *Day users* were defined in the survey as those who visited one of the parks without using accommodations in or near the parks. Many of these people were either local residents or were travelers passing through on I-90. In 1988-89 only a small number of winter visitors to Yellowstone were day users. Grand Teton attracted more day users, but even there they made up only about one-fourth of all visitors.

Overnight users spent an average of 5.6 nights. Winter visitors to Jackson Hole stayed twice as long as summer visitors. Length of stay for nonlocal snowmobilers was 4.0 nights in 1989, compared to 5.5 nights in 1977.

In winter, as in summer, roughly two-thirds of all visitors used the visitor centers. However, only half of the day users went to visitor centers. This was also true of people who visited only Grand Teton.

Fewer than one-fourth of all visitors went to both parks; nearly two-thirds visited only Yellowstone and one-fourth visited only Grand Teton. Both Old Faithful and the west entrance were visited by more than one-half of all visitors. Based on their responses to why they chose to use a particular park entrance, visitors appeared to be very committed to entering at particular locations. Over 62 percent of respondents rated the reliability of snow cover as extremely important or very important in affecting their choice of an entrance. Relative proximity to park features and outside facilities and attractions were also highly rated.

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[1] This definition varies from the traditional definition of overnight users, which normally refers to people who spend the night inside the park boundaries. In winter, most visitors actually stay overnight outside the parks.

When forced to select the single favorite part of their visit, most people chose scenery/general viewing/wildlife viewing. Snowmobiling and solitude were the next most frequently chosen responses. Snowmobiles were also identified most often as the worst part of the visit. Other significant complaints were starving wildlife, burnt forests, and bumpy road conditions for snowmachines. (These responses to the 1988-89 questionnaire were undoubtedly influenced by the wildlife impacts of a hard winter after several mild ones and by the visual impact of the 1988 fires).

All existing services received good ratings for quality. The most important services to visitors were restrooms, informational and directional signs, and unplowed roads open to oversnow vehicles. Groomed and ungroomed ski trails were important to skiers. Lodging within the park (whether accessible by car or not) and ranger-led walks and talks were rated as not very important.

Snowmobilers were interested in more short snowmobile routes. Only one-fourth of all snowmobilers were interested in more regional snowmobile trails. Most of those interested in longer trails were from Wyoming; approximately half of the snowmobilers from that state expressed a need for more long snowmobile trails. A separate statewide survey conducted in 1989 found only one-third of the Wyoming snowmobilers felt a need for more such trails (University of Wyoming 1989). Overall, more park visitors were interested in eliminating such trails than in providing new ones, and snowmobilers were much more interested in more gas stations than in longer trails.

Cross-country skiers were interested in more groomed and ungroomed ski trails. They, like all visitors, were very interested in more restrooms.

Lodging in the parks accessible by car (such as the Mammoth Motor Inn) was ranked by visitors as being of the lowest importance. Fewer than one-fourth of all visitors desired an increase in this type of lodging. A similar portion of the visitors desired a reduction.

Lodging in the parks accessible only by oversnow vehicle (such as the Snow Lodge) was ranked by visitors as being of less than average importance. Approximately one-fourth of all visitors desired an increase in this type of lodging. Fewer than one-tenth of all visitors desired a reduction in these facilities.

A few traditional visitor activities are too limited to generate a significant response in a general visitor survey. For example, some Grand Teton visitors use snowplanes for ice fishing on Jackson Lake. Snowplanes are oversnow vehicles mounted on skis driven by a pusher-propeller. They are largely home-built machines owned by people who live near the park. About 80 snowplanes are registered in the park each winter. They are not used on any other lakes in the study area.

Visitation Trends and Forecast

Winter use levels have gone up and down during recent years at Yellowstone, Grand Teton, and the Rockefeller Parkway. Between 1982 and 1988 winter visits to the three-park area increased by an average of more than 4 percent per year. In the 1988-89 season, use decreased by 3 percent, and in 1989-90, it increased by 2 percent.

Table 1 summarizes use levels (entrance totals) for the past eight years. For the individual park statistics, visitors were counted for every park they entered; however, in computing the three-park total, double counting was eliminated by including only the statistics for the west, north, and east entrances of Yellowstone, on the assumption that visitors entering the south entrance would have already been counted when they entered the Rockefeller Parkway. More detailed winter use information can be found in appendix A.

TABLE 1: WINTER USE SUMMARY

SEASON	YELL	GRTE	JODR	3-PARK AREA*
1982-83	68,607	43,067	12,954	100,879
1983-84	69,653	34,367	11,628	94,330
1984-85	74,505	35,712	11,442	100,682
1985-86	79,309	43,372	13,081	111,780
1986-87	86,170	44,668	15,541	117,887
1987-88	95,506	44,845	19,504	124,097
1988-89	92,614	44,991	20,435	120,576
1989-90	98,249	44,947	24,386	122,874

*The three-park total is not the sum of the individual parks. To eliminate double counting of visitors who travel through more than one park, the total only includes visitors entering Yellowstone through the west, north, and east entrances, plus visitors entering Grand Teton.

Winter visitor use is about one-twentieth the amount of summer use in the parks. Annual recreation visits in 1989 to Yellowstone totaled about 2.6 million and to Grand Teton about 1.3 million. Winter use in the parks accounts for less than 20 percent of winter use in the greater Yellowstone area. While many visitors are attracted to the area by the national parks, most winter use occurs in national forests surrounding the parks (see "National Forest Facilities and Use," below).

Five-year and ten-year forecasts of annual winter use in the three-park area are shown in table 2. Low and high forecasts have been developed to show a range of possibilities. Based on past use of the three parks, typical national park growth rates, general national trends in winter sports, and other factors, it is assumed that winter use growth rates will level off somewhat over the next ten years. General experience in other parks indicates that rapid growth is usually followed by periods of leveling. It should be noted that winter use is very difficult to forecast and can vary substantially due to regional snow conditions and other factors. The forecasts are based on existing conditions and do not consider possible effects on use levels resulting from the plan and alternatives under consideration in this document. Those effects are evaluated in the "Environmental Consequences" section.

TABLE 2: ANNUAL WINTER USE FORECASTS, THREE-PARK AREA

SEASON	LOW FORECAST	HIGH FORECAST	AVERAGE FORECAST
Five-year Forecast: 1994-95 winter season	122,900 (0%)	139,500 (+14%)	131,200 (+7%)
Ten-year Forecast: 1999-2000 winter season	125,100 (+2%)	143,500 (+17%)	134,300 (+9%)

LOCAL/REGIONAL ECONOMY

The economic analysis considers a 17-county region (all the counties in the greater Yellowstone area). The counties, which are listed in table 3, were first used to identify local residents in the 1977 *Greater Yellowstone Regional Transportation Study*. Tourism and other recreational uses are a major source of income for this area, and the economies of the communities is heavily dependent on resources based on federally managed lands. Visitors are often drawn to the greater Yellowstone area to spend a day in a national park but generally stay in the region for several days using recreation opportunities on adjacent national forest and private lands. There is a close relationship between activities and services provided in the parks and those provided outside the parks.

In the last 20 years winter use has become a major part of the local economies in park gateway communities. It is now heavily promoted as a supplement to summer use, to capitalize on otherwise idle infrastructure and to create year-round employment. Services for winter visitors are provided in all surrounding communities at varying levels.

West Yellowstone, Montana, offers extensive lodging and food service in winter, and the community calls itself the "snowmobile capital of the world." More than 1,000 snowmachines are available for rent to unguided and guided snowmobile parties. West Yellowstone receives reliable winter snowfall and is uniquely situated with direct access to Yellowstone snow roads and an extensive system of groomed national forest snowmobile trails and open snow play areas. The use of snowmachines is also permitted on most city streets. The community also offers an extensive network of groomed ski touring trails, equipment rental services, and annual races for cross-country skiers.

Jackson, Wyoming, is also a major center for winter activity, but the economy is less dependent on snowmachine use. The Jackson area has two major downhill ski areas, including one very large facility with a national and international reputation. Three facilities offer groomed ski touring trails, and cross-country ski equipment rentals are available at several businesses in the area. Several outfitters rent snowmobiles and provide guided trips into Yellowstone and national forest lands in the Jackson area. Extensive winter lodging and food service opportunities are available in the community.

Gardiner, Montana, offers some snowmobile rentals and several new motels and restaurants are open for business in winter. Cooke City, Montana, has several businesses that cater to snowmobilers and cross-country skiers in winter. Cooke City visitors pass through Yellowstone on their way to the town, but their primary destination is an extensive network of national forest trails and backcountry areas northeast of the park. Cody, Wyoming, also supports winter activity in the area, and local businesses are interested in significantly increasing this sector of the economy.

Table 4 shows the structure of the entire economy of the 17-county greater Yellowstone area. The following discussion covers only the parts of the economy affected by this plan. Winter visitors spend nearly twice as much per person per day as summer visitors. Based on visitor surveys, visitor groups spend an average of $782 per group per visit, which is the equivalent of $60 per person per day. This includes the time spent near the parks, not just the days spent visiting the parks. As shown in table 1, during the 1989-90 winter season, the three-park area reported a total of about 122,900 visits. About 88,500 of these visits were by people coming from outside the 17-county greater Yellowstone area. These winter visitors to Yellowstone, Grand Teton, and Rockefeller Parkway spent an estimated $5.3 million dollars in the 17-county greater Yellowstone area.[1]

TABLE 3: COUNTIES IN GREATER YELLOWSTONE AREA

IDAHO	MONTANA	WYOMING
Bonneville	Carbon	Fremont
Fremont	Gallatin	Hot Springs
Jefferson	Madison	Lincoln
Madison	Park	Park
Teton	Stillwater	Sublette
	Sweet Grass	Teton

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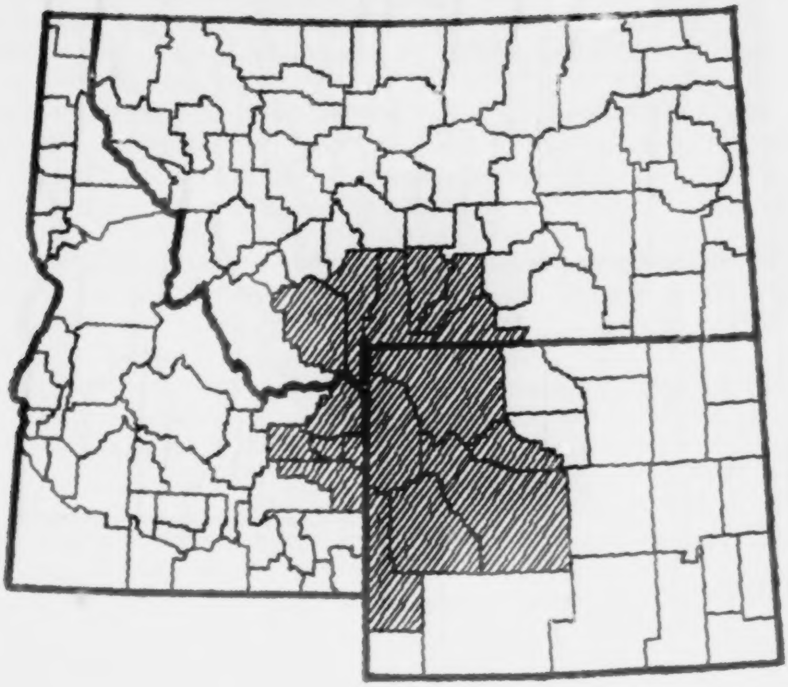
[1] The determination of economic benefit to the region excludes expenditures by the 28 percent of visitors who are regional residents (and would be spending money in the region whether they visited the parks or not). The estimate of $5.3 million probably understates the total expenditures by nonregional residents attributable to the three parks because of the nature of the visitation data. The visitation data for this study are expressed in terms of park *visits* rather than *visitors* (a visit is an NPS standard roughly equivalent to a park entry). Using the available visitation data, the economic impacts of this plan were computed as $60 per park visit, and this approach does not account for the second-day or third-day (and so forth) expenditures made by people on multiday visits to one of the parks.



Seventeen-County Greater Yellowstone Area

The economic benefit of expenditures by nonregional residents is increased by secondary expenditures (for example, the expenditures by restaurants that buy some of their supplies within the 17-county area). Visitor expenditures ultimately generate annual business activity within the 17-county greater Yellowstone area of $8,189,000. This economic activity annually results in the creation of the equivalent of $2,290,000 in employee income. Teton County, which includes Jackson, Wyoming, and Gallatin County, which includes West Yellowstone, Montana, benefit more than the rest of the 17-county area from this winter use activity.

Local businesses also benefit from annual NPS expenditures for salaries, goods, and services. Another short-term benefit results from periodic construction projects.

Although tourism is an extremely important part of the regional economy, it is very vulnerable to slow periods during the non-summer season. An increase in tourism during the non-summer months would have much more economic benefit than an increase during the summer months.

TABLE 4: ECONOMIC ACTIVITY, 17-COUNTY GREATER YELLOWSTONE AREA, 1982 (IN MILLION DOLLARS)

ECONOMIC SECTOR	TOTAL BUSINESS ACTIVITY	EMPLOYEE INCOME
Agriculture	$ 787.0	$ 52.7
Forest Products	23.1	7.5
Metals	90.5	35.2
Fossil Fuels	1,722.6	146.9
Aggregate Materials	19.6	5.9
Phosphate Rock	29.2	6.0
New Residential Structures	132.4	33.9
New Industrial Construction	691.9	197.3
Food Processing	254.2	32.4
Apparel	33.6	9.6
Sawmills and Millwork	68.6	16.1
General Manufacturing	520.6	127.4
Petroleum Refining	304.1	11.6
Railroads and Related Sectors	72.5	32.0
Other Transportation	60.3	12.4
Motor Freight Transport	61.5	25.6
Air Transportation	27.0	6.6
Pipe Lines, except Natural Gas	29.6	2.6
Communication	51.6	19.0
Utilities:gas/water	455.9	47.0
Recreational Related Wholesale Trade	26.2	10.8
Other Wholesale Trade	271.2	111.6
Recreational Related Retail Trade	19.0	8.8
Other Retail Trade	301.8	140.3
Fire	580.5	60.1
Hotels and Lodging Places	75.1	21.7
Personal Services	271.7	113.4
Business Services	299.7	131.8
Eating and Drinking Places	211.7	61.4
Auto Services	290.3	78.3
Recreation Services	25.7	8.4
Education	59.3	33.4
Non-Profit Organizations	19.9	9.9
Public Services	36.8	20.1
Other Federal Government	7.1	1.7
Local Government	0.1	0.1
State and Local Electric	14.8	1.7
Other State and Local Government	18.6	4.2
Government Industry	370.4	370.4
All Other Industry	51.3	(0.1)
Household Industry	4.3	4.3
Inventory Valuation Adjustment	(11.4)	0.0
Total	$8,379.8	$2,020.0

EXISTING CONCESSION SERVICES AND FACILITIES

Yellowstone National Park

TW Recreational Services (TWRS) operates lodges inside Yellowstone, two of which are open in the winter. All lodging is in buildings that were originally designed for summer use only and have since been at least partially winterized with mixed success.

The Mammoth Motor Inn offers 95 hotel rooms in the main building and 37 rooms at the Aspen employee dorm, which is open to visitors in the winter. Food service facilities include a dining room (155 seats), a fast food outlet (104 seats), and a bar (37 seats). The nearby Hamilton Store is open and also has a snack bar (25 seats).

The Old Faithful Snow Lodge was originally designed as an employee dorm. It offers 29 rooms without baths in the lodge, 34 rooms with baths in detached cabins, and 37 units with baths at the Snowshoe employee dorm. Food service facilities include a dining room (99 seats), a fast food outlet (40 seats), and a bar (25 seats). Concession employees dine in a temporary modular unit attached to the rear of the lodge. The Snow Lodge is poorly designed for winter use, functionally obsolete for visitor lodging, and aesthetically incompatible with the rustic character of the historic Old Faithful buildings.

Ski rentals and supplies are provided by TWRS at Mammoth and Old Faithful. TWRS operates snow coach tours to Old Faithful from Mammoth, West Yellowstone, and Flagg Ranch, and tours to Canyon from Mammoth and Old Faithful. Gasoline for snowmobiles is available at Mammoth and, as long as the winter supply lasts, at Canyon and Old Faithful.

Numerous additional companies provide visitor services from bases outside the parks. Three companies offer snow coach tours and/or freight service from West Yellowstone to Old Faithful. Guided snowmobile tours regulated through commercial use permits are offered by two companies in Gardiner, two in West Yellowstone, three at the Grand Targhee ski area, and one at Pahaska Tepee. Eleven Jackson area guides take visitors from Rockefeller Parkway into Yellowstone (see below). Numerous companies in West Yellowstone rent snowmachines for unguided tours. A snowmobile towing service also operates from West Yellowstone.

Thirty snowmobiles were available for rent in Yellowstone from the park concessioner in 1989-90. The Park Service regulates these snowmobile rentals through a concession contract, whereby the visitor is provided a safe and quality experience, at a reasonable cost, and park resources are protected. Additionally about 1,140 machines available in the gateway communities are regularly rented for use inside the park. The National Park Service is evaluating methods of regulating the use of these machines in a manner similar to guided snowmobile services.

Grand Teton National Park

No lodging is available at Grand Teton during the winter, with the exception of occasional use of the Triangle X Ranch. The only food service is provided at Dornan's, located on private land across the Snake River from the park headquarters at Moose.

No snowmobiles are available in Grand Teton for rent to unguided parties. Guided snowmobile tours along snow roads in the park are offered by a company operating out of the Signal Mountain Lodge. The Grand Teton Lodge Company is also authorized to provide this service but is not doing so at this time. The Triangle X Ranch is authorized to rent snowmobiles and cross-country skis to guests. Five companies provide limited guided cross-country ski touring, and one company offers a dog sled touring service in the park. Commercial trips are not permitted in the Potholes snowmobile area.

Rockefeller Parkway

An approved plan for the Flagg Ranch area calls for the concession facility to be relocated and rebuilt with up to 150 lodging rooms on a nearby bench above the floodplain of the Snake River. The existing lodging, which will be removed, includes 30 winterized units that are available year-round. The existing complex also offers a 40-seat restaurant, a 30-seat bar, a general store, gift shop, and gas station. Snowmobile tours and rentals are currently offered, and the concessioner is authorized to provide cross-country ski rentals and tours and snow coach tours but is not doing so at this time. The concessioner at Flagg Ranch offered 60 snowmobiles for rent in 1989-90. These rentals are regulated by the National Park Service through the concession contract.

Eleven Grand Teton National Park concessioners provide guided snowmobile trips from outside the parks into Yellowstone by way of the south entrance. Guests and machines are transported from the Jackson area to designated parking places along the parkway just north of Flagg Ranch.

Winter Lodging Use

Tables 5, 6, and 7 provide winter lodging use statistics, opening and closing dates, and occupancy rates for Yellowstone and the Rockefeller Parkway. About a third of the visitors to Yellowstone stay overnight at Mammoth Motor Inn or Old Faithful Snow Lodge. Less then 10 percent of the visitors to the parkway stay overnight.

During January and February, Snow Lodge occupancy averages over 92 percent, Mammoth Motor Inn averages 65 percent, and Flagg Ranch just under 29 percent. Many visitors that use lodging in the parks also use lodging in gateway communities before or after their stay in the parks. Most visitors to the parks from outside the area stay only in the gateway communities and come into the parks for the day. There is a close relationship and balance between park winter use and lodging in the parks and outside the parks. However, thus far winter use in the parks has not caused the development of new lodging capacity in or outside the parks. Rather, excess capacity from the summer season is utilized.

TABLE 5: WINTER LODGING USE

YELLOWSTONE NATIONAL PARK

WINTER SEASON	MAMMOTH MOTOR INN		SNOW LODGE		PARK TOTAL		% OF TOTAL VISITORS
	ROOMS	GUESTS	ROOMS	GUESTS	ROOMS	GUESTS	
1982-83	940	2,308	5,905	14,488	6,845	16,796	24.5
1983-84	1,983	4,394	5,607	14,884	7,590	19,278	27.7
1984-85	4,690	11,585	6,225	13,912	10,915	25,497	34.2
1985-86	8,000	18,057	6,918	16,290	14,918	34,347	43.3
1986-87	6,979	15,800	7,025	16,537	14,004	32,337	37.6
1987-88	6,937	16,151	7,402	17,855	14,339	34,006	35.6
1988-89	5,802	13,243	6,140[a]	14,015	11,942	27,258	29.4
1989-90	6,068	13,358	7,411	17,748	13,479	31,106	31.7

ROCKEFELLER PARKWAY

WINTER SEASON	FLAGG RANCH	
	ROOMS	GUESTS
1982-83	429	1,047
1983-84	667	1,759
1984-85	691	1,573
1985-86	873	2,106
1986-87	747	1,828
1987-88	854	2,092
1988-89	637	1,539
1989-90	1190	2,773

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[a] Number of available rooms reduced because of the 1988 wildfires.

TABLE 6: OPENING AND CLOSING DATES

WINTER SEASON	MAMMOTH MOTOR INN	SNOW LODGE	FLAGG RANCH
1982-83	12/17-2/26	12/17-3/13	12/15-3/15
1983-84	12/22-2/16	12/16-3/11	12/15-3/15
1984-85	12/21-3/03	12/14-3/10	12/15-3/15
1985-86	12/20-3/16	12/18-3/09	12/15-3/15
1986-87	12/19-3/02	12/17-3/09	12/15-3/15
1987-88	12/18-3/07	12/16-3/14	12/15-3/15
1988-89	12/16-3/06	12/14-3/13	12/15-3/15
1989-90	12/21-3/04	12/15-3/12	12/15-3/15

TABLE 7: JANUARY-FEBRUARY OCCUPANCY RATES (%)

WINTER SEASON	MAMMOTH MOTOR INN JAN.	MAMMOTH MOTOR INN FEB.	SNOW LODGE JAN.	SNOW LODGE FEB.	FLAGG RANCH JAN.	FLAGG RANCH FEB.
1985-86	66.0	79.4	86.9	96.6%	21.1%	33.9%
1986-87	62.7	79.5	95.3	94.8	22.6	32.7
1987-88	53.4	76.5	90.9	93.6	23.9	46.7
1988-89	44.1	62.0	90.7	89.7	16.0	33.6
1989-90	53.3	69.8	85.2	91.4	26.2	55.6

Note: Rates are based on the number of rooms available and rented during this period.

NPS FACILITIES

Most administrative support facilities in the parks – ranger stations, maintenance areas, employee housing, and related structures – were developed for summer use, and are inadequate for winter use.

Yellowstone

All NPS facilities at Mammoth are operational during the winter. A new warming hut near the Mammoth Terrace incorporates office space for concessioner snowmobile rentals and vending machines. Restrooms and parking are nearby. NPS housing at Mammoth includes winterized homes and apartments, and small, marginally winterized trailers originally intended for summer use only.

The visitor center at Old Faithful is the only visitor center in the interior open in the winter. Other Old Faithful facilities open in winter include the NPS maintenance facility, two four-plexes and three houses, and a few marginally winterized trailers.

Other facilities used during winter in Yellowstone include vault toilets at Norris; a warming hut with a snack bar, vault toilets, a maintenance facility, and housing at Madison; a maintenance facility, a ranger office, an entrance station, and housing at the west entrance; vault toilets, a ranger station, and housing at Tower; a warming hut with a snack bar, vault toilets, a maintenance facility, a ranger station, and housing at Canyon; a warming hut and vault toilets at Fishing Bridge; housing and an entrance station at the east entrance; a ranger station, a maintenance facility, and housing at Lake; a warming hut and vault toilets at West Thumb; a maintenance facility and housing at Grant; and a ranger/entrance station, vault toilets, and housing at the south entrance (see the Existing Conditions map).

Grand Teton

All necessary NPS facilities at the Moose headquarters and Beaver Creek are operational during winter. Other Grand Teton winter facilities include a ranger station, a campground, restrooms, and housing at Colter Bay; and a ranger station and housing at Moran.

Rockefeller Parkway

The Park Service has no year-round facilities at the Flagg Ranch complex. The closest NPS developed areas are at the south entrance to Yellowstone and at Colter Bay in Grand Teton.

Staging Areas

Staging areas are points of access for the oversnow routes into the parks. They have a parking area with appropriate signing and may have restrooms, a warming hut, and snowmobile rental facilities. The snowmobile staging areas for trips into Yellowstone are near Mammoth Hot Springs in the north, at Pahaska Tepee in the Shoshone National Forest near the east entrance, at a parking area just north of Flagg Ranch near the south entrance, and in the city of West Yellowstone near the west entrance. The Mammoth Terrace warming hut is the only facility specifically designed for a snowmobile staging area. The Flagg Ranch, West Yellowstone, and Pahaska staging areas become congested during peak days because of small or undefined parking and unloading areas.

The Cottonwood Creek parking area is the only significant staging area in Grand Teton, although people can also park and unload their snowmobiles at a plowed parking area at the end of the road near Signal Mountain and at several other small winter trailheads in the park.

Snow Roads and Plowed Roads

Snow roads (unplowed park roads open to oversnow vehicles) are the predominant transportation corridors in Yellowstone. The only plowed roads are US 89 and 212 from Mammoth to Gardiner and Cooke City, and US 191, which cuts across the northwest part of the park. The only other paved road corridor that is not managed as a snow road is the segment of the Grand Loop over Dunraven Pass, which is closed to all traffic during the winter because of avalanche danger and related safety hazards. Snow roads in developed areas are not as extensive as summer roads, and general public and administrative use are often combined along the same routes. Frequency of grooming varies, depending on amount of use, severity of winter storms, and staffing capabilities.

In Grand Teton and the Rockefeller Parkway, plowed roads are the predominant transportation routes. US 89 is plowed through Grand Teton up to a parking area just north of Flagg Ranch. The segment north of Moran Junction has a winter average daily traffic (ADT) of about 280. Other major plowed routes include the park road through the Moose headquarters site and up to the Cottonwood Creek trailhead, and US 287 east of Moran. US 287 east of Moran has a winter ADT of about 390. The winter traffic levels on these roads are about one-tenth the summer levels. Snow roads follow the park road from Cottonwood Creek to Signal Mountain and the Jenny Lake loop road. Other snow roads follow the Moose-Wilson road in Grand Teton, the Reclamation road in Rockefeller Parkway, and short access roads into surrounding national forest land. No snow roads are groomed in Grand Teton or Rockefeller Parkway except the short segment between Flagg Ranch and the south entrance to Yellowstone.

Plowed roads in the parks are accessed by plowed roads passing through national forests and nearby communities in the greater Yellowstone area. The pattern of road plowing and snow road grooming in the parks has direct impacts on local communities and the plowed roads outside the parks. For example, the plowed road through the northwest part of Yellowstone provides the only winter road access to Cooke City, and local residents and winter recreationists using that area are highly dependent on that corridor in winter.

Potholes Snowmobile Area

If snowcover requirements are met, the Potholes area of Grand Teton is also open to snowmachines. The Potholes area is a 16,000-acre authorized exception to the NPS snowmobile policy. Most of the area is flat sagebrush plains; about one-third is rolling hills that are used by snowmobilers for "snow play." Snowmobiling use began in Grand Teton in the 1960s when snowmobiles came on the market. Off-road machine use became established in large areas of the park east of the mountains. In the 1970s the Park Service developed a national policy of restricting snowmobiles to roads and water surfaces used by motorized vehicles and motorboats in other seasons. Through a local review process the Potholes area was authorized for continued use in a special park regulation. The area is opened for a few weeks in late winter when snow conditions are adequate to cover the vegetation. It did not open in 1990. Commercial guided tours are not permitted in this area.

Use in the Potholes is low and has declined in the 1980s from about 1,000 visits to about 300 visits per year (see appendix A). Even when use figures are adjusted to account for years when the Potholes area was not open and for years with short seasons, the use per day during the available open periods is still declining. It may be that snowmobilers are choosing other areas that have better snow and have become more accessible in the last ten years. For example, a well-marked and groomed trail now provides good access into the snow play areas near Togwotee Pass, seasonal restrooms are now put out there in the winter, and there are several food and lodging services nearby that are now open in winter. This area is part of the Bridger-Teton National Forest, which has over 24,000 acres of identified off-trail areas open to snowmobiles (USFS 1989).

Ski Trail System

Cross-country skiing is permitted on summer hiking trails and in most backcountry areas in the three parks. Selected trails, primarily near developed areas, are designated and marked as ski trails. Some ski trails are located on unplowed roads that are not designated as snow roads. Cross-country ski trails in the study area receive different levels of marking and grooming. Groomed ski trails near developed areas in Yellowstone are marked, mapped, and graded according to difficulty. Ski trails in Grand Teton and the Rockefeller Parkway are marked but none are groomed. Some trails used for cross-country skiing cross park/forest boundaries, but the most heavily used ski trails in the parks are entirely within park boundaries.

NATIONAL FOREST FACILITIES AND USE

National forests in the greater Yellowstone area offer a variety of winter recreation opportunities. Data collected from the U.S. Forest Service in 1989 indicated that facilities included the following:

349 miles of groomed and 416 miles of ungroomed cross-country ski trails
5 downhill ski areas
701 miles of plowed scenic driving roads
1,377 miles of groomed snowmobile trails
471,400 acres of forest land open to off-trail snowmobiling
2 snow coach/snow cat tours

Annual use of these national forest winter opportunities totals over 686,000 visitor days. About 44 percent of this use is downhill skiing and about 34 percent is snowmobiling. Approximately 80 percent of the snowmobiling in the forests is on groomed trails and about 20 percent is on ungroomed trails or in off-trail areas. Over 80 percent of the winter use on federal lands in the greater Yellowstone area occurs in national forests, outside the parks. While many visitors are drawn to the greater Yellowstone area by the parks, they spend much of their time recreating on adjacent federal lands. Changes in opportunities on park lands will affect use levels on national forest lands and vice versa.

WINTER USE PLAN

This section describes the plan for winter use in the three-park area. Each major planning issue is addressed with a management objective for resolving that issue, followed by proposed park policies and supporting actions for achieving the objective. Unless specified by area in the text, the proposals apply to all three parks. Plan implementation will depend on funding appropriations from Congress.

The *Winter Use Plan* is a policy-type plan intended to guide overall management of visitor use and identify staffing and facility needs to accommodate winter use in the three-park area. It is not a detailed implementation plan. Many of the specific implementing actions will be identified in more detailed plans, as necessary, such as park resource management plans, development plans, research proposals, visitor use regulations, and operating procedures, consistent with the policy guidance provided in this plan.

Plan implementation will be coordinated with the U.S. Forest Service and other land-managing agencies and local communities in the greater Yellowstone area to ensure that adjacent areas are not adversely affected by unforseen circumstances and to take advantage of the benefits of interagency cooperation. Areas of cooperation may include search and rescue, equipment and storage caches, avalanche awareness and safety education programs, avalanche hazard monitoring and advisories, shared use of personnel, and trail signing.

VISITOR EXPERIENCE

> ***Management Objective**: Preserve and emphasize the national park experience of viewing world-renowned scenery, major concentrations of unique and unusual geothermal features, extensive populations of free-roaming wildlife, and nationally significant historic features in Yellowstone, Grand Teton, and Rockefeller Parkway during the winter.*

Snowmobiling, ski touring, snow coach tours, and other winter activities will be oriented to the appreciation of the parks' outstanding resources, as listed above. Recreational activities that are not directly related to park resources, such as snow play, will occur more appropriately on lands outside the parks. The national parks, national forests, and other federal lands serve many of the same visitors in the greater Yellowstone area, but the agencies have separate and distinct missions, and lands are managed according to these different mandates. The visitor experience in the parks will complement the experiences available on adjacent lands. The Park Service will work closely with the Forest Service and other land-managing agencies to ensure that authorized winter activities occur in desired locations in the greater Yellowstone area, and that sensitive resources throughout the region are protected from adverse impacts of winter use.

The National Park Service will provide opportunities for a spectrum of visitor experiences ranging from appreciation of quiet and solitude to enjoyment of more social experiences in the context of a natural park setting. Park managers will attempt to minimize user conflicts. Visitor activity will be managed through zoning (see the Winter Visitor Use Zones map). The winter use zoning is similar but not identical to the general management zoning for the parks. It is simplified to concentrate on visitor use and to explain how use differs in the three zones in winter. The level of use and facility support will be considerably reduced in all the zones in winter compared to summer use and facilities; thus, visitors may still find opportunities for backcountry kinds of experiences even in the developed zone in winter.

> The **wilderness zone** will include areas in Yellowstone and Grand Teton that have been recommended for wilderness (NPS 1972a and 1972b).[1] These make up the vast majority of lands in the study area. Winter use in this zone will be very low, and visitor facilities will be limited to ungroomed ski trails without supplemental marking for winter use. Outstanding and abundant opportunities for quiet and solitude will be preserved in this zone. All facilities discussed in the plan and alternatives in this document would be outside the recommended wilderness areas shown on the map. Except for emergency administrative situations, machines will not be used in this zone.
>
> The **developed zone** will encompass facilities supporting visitor use and administrative needs and major park roads (including snow roads). Visitor use and development will be highly concentrated in these areas. Facilities may include lodging, restaurants, visitor centers, warming huts, campgrounds, parking areas, park housing, maintenance areas, and other necessary support development. Opportunities for social interaction will be greatest in this zone. Opportunities for quiet and solitude will vary but will be substantially less than in the other two zones. This will be the smallest zone in the parks.
>
> The **natural zone** will serve as a transition between the wilderness and developed zones. Winter use will be higher than in the wilderness zone but substantially lower than in the developed zone. Greater opportunities for quiet and solitude will exist in winter than exist in summer in the natural zone. Visitor use of snowmachines will not be allowed in the natural zone. The snow roads and plowed roads that traverse this zone are included in the developed zone. Although a large portion of Yellowstone Lake is open in summer to motorboat use, it will continue to be closed to visitor snowmachine use. Ski trails that follow summer roads may be marked for winter use and machine groomed by park staff. Because machine grooming is restricted to roads used by motor vehicles in the summer, most of this zone will not be open to grooming. This zone may also contain boardwalks, overlooks, and interpretive trails, but it will remain generally undeveloped. This will be the second largest zone in the parks. Additional restrictions may be established in the natural zone or any other zone to protect park resources. For example, the Snake River bottomlands are in the natural zone but are currently closed to winter use to protect wintering wildlife in the area. These restrictions will be reviewed annually as discussed under "Wildlife Effects," below.

Facilities and services in the parks will be accessible to visitors with disabilities to the maximum extent practicable in compliance with federal accessibility laws and regulations.

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[1] Because there is no wilderness recommendation for the Rockefeller Parkway, none of its lands are included in this zone. If this status changes, the zoning will automatically be revised to place all recommended wilderness in the wilderness zone. Any revisions to the wilderness proposals for Yellowstone and Grand Teton will also automatically revise the boundaries of this zone.

USE LEVELS/CAPACITIES

> ***Management Objective**: Accommodate modest levels of use forecast for the next ten years, and establish a process for managing future increases in winter use to keep impacts within prescribed limits.*

An analysis of current resource data and the research literature listed in "Selected References" indicates that the modest increases in use forecast to occur over the next ten years if this plan is implemented can be accommodated without unacceptable impacts on the desired visitor experience or the area's significant natural or cultural resources.

To facilitate the management of use beyond the forecast increases and to ensure that impacts are kept within acceptable limits in the future, the National Park Service will develop a *visitor use management* process for Yellowstone National Park and Grand Teton National Park (including Rockefeller Parkway). The process will generally be initiated as soon as the forecast use levels are reached, or sooner if necessary to address identified visitor impact problems or if growth accelerates much more rapidly than is now anticipated. In the specific instance of the Continental Divide snowmobile trail, the process will be initiated as soon as the trail is opened, before the projected use level is achieved, to ensure that unacceptable adverse effects do not accompany that new use of the parks (see "Continental Divide Snowmobile Trail," below).

The concept of managing visitor use to protect park resources and the quality of the visitor experience has long been an integral part of NPS management practices. Thus, the visitor use management process will not introduce a new management concept, but it will provide a formalized process for applying this concept in a relatively new approach to the issue of carrying capacity.

As part of the proposed process, park staffs will identify more specific visitor experience and resource protection objectives, identify key impact indicators, establish a monitoring program, and identify specific actions to manage impacts within acceptable limits. Key impact indicators to be monitored may include wildlife movements, wildlife behavioral responses to human activity, noise levels, and user conflicts. Monitoring programs will focus on areas of special environmental concern, such as critical winter wildlife habitat. This habitat is usually located along rivers, valley bottoms, and in geyser basins (for example, along the Madison River from the west entrance to Madison Junction, along the Firehole River, in Hayden Valley, in Lamar Valley, and at Oxbow Bend of the Snake River). Monitoring in these types of areas may concentrate on how visitor use affects animal movement, stress, and energy consumption.

This process will not produce one overall carrying capacity for the area. Instead, it will be a continuous process of redefining objectives, monitoring impact indicators, and adjusting management actions for specific areas and uses in the parks to keep impacts within prescribed limits. Park managers will take whatever actions are necessary to keep impacts within prescribed levels, normally implementing controls incrementally as the situation warrants rather than all at once in anticipation of future problems. This should ensure that controls are adequate but not unnecessarily restrictive. This approach is unlike the general public's conception of "carrying capacity," which would set one overall capacity number for the parks and establish an areawide system to keep use below that number, but it is consistent with the

current literature and newer approaches to addressing the capacity issue (Forest Service 1985 and Graefe et al. 1987).

Winter use levels and facility capacities will not significantly exceed those prescribed in this plan until the visitor use management process is implemented and verifies that additional management actions will not adversely affect park resources and the desired visitor experience. This means that the current overnight capacity and distribution of overnight use in Yellowstone and Grand Teton will not be significantly changed until the process is operational. Similarly, existing commercial use levels will not be exceeded until the process indicates that increased use levels will not adversely affect park values. Exceptions to the use level and facility capacity policy will be made for the new lodging units to be built at Flagg Ranch under the recently executed concession contract and for possible limited guided snowmobile tours passing through on long-distance trips along the proposed Continental Divide snowmobile trail (see below).

Increases in winter use in the parks will normally result in corresponding increases in use on adjacent lands. Reductions in facilities and activities may also affect adjacent areas by decreasing use or shifting it off the parks and onto nearby lands. Therefore, any actions not specified in this plan that might significantly affect park visitation levels or change use patterns will be coordinated with the U.S. Forest Service, other land-managing agencies, and local communities in the greater Yellowstone area to minimize adverse effects. The visitor use management process will incorporate concerns about impacts on adjacent lands.

WILDLIFE EFFECTS

> ***Management Objective****: Protect wildlife from unacceptable impacts caused by winter visitor use.*

Winter visitor use will be managed to avoid significant impacts on wildlife by directing visitors away from sensitive wildlife habitat and toward less sensitive areas. Exhibits at warming huts and visitor centers and personal contacts by rangers will assist in protecting wildlife by directing visitors away from areas where impacts could occur and by telling visitors how to avoid conflicts with wildlife. Certain areas, such as the Snake River bottomlands at Grand Teton and the McMinn bench at Yellowstone, are currently closed to all winter use to protect wildlife. Also, snow roads in Yellowstone are closed on or before the third weekend in March to, among other things, reduce impacts on spring bear activity. The opening date for wheeled vehicle visitor use is no sooner than April 15 in Yellowstone, and restrictions on administrative use of plowed road corridors prior to public opening dates are enforced to avoid human-bear conflicts. Yellowstone's bear management practices do not change specifically in the spring; however, the Firehole bear management area (between Madison and Old Faithful) is one of several areas where human use is restricted to allow bears maximum use of key habitat. Approximately 41,600 acres is completely closed to human travel from March 10 to the Memorial Day weekend.

In the future, specific management strategies for sensitive areas will be determined through existing management techniques or the visitor use management process. Park managers will take whatever actions are necessary to keep impacts within prescribed levels, normally implementing controls incrementally to keep them adequate to avoid unacceptable impacts but not unnecessarily restrictive. Some examples (not all-inclusive) of actions that might be taken by park managers to reduce impacts on wildlife are listed below in graduated order, from the least to the most restrictive. The measures applied in each particular instance will depend on the severity of the problem, and normally the less restrictive measures will be tried first.

Increase efforts to more adequately inform visitors and staff about minimum-impact winter use techniques.

Mark and pack or groom trails to channel visitors away from sensitive habitats and encourage them to use less sensitive areas.

Omit sensitive areas from maps, guides, and other information provided to visitors.

Direct use away from areas by not plowing parking areas or by covering or removing signs in winter.

Restrict travel in sensitive areas (such as high-value habitat where wildlife congregate) to marked trails.

Limit the levels of use in certain areas.

Close certain areas for temporary periods.

Close certain areas to all winter use for the entire season.

Other options might be developed by park staff to supplement this list based on site-specific conditions or other factors.

Flexibility is essential in managing visitor use to protect wildlife. Temporary closures and openings will be implemented as needed to account for variations in snow accumulations, animal movements, and restrictions needed for only part of the season. For example, visitors may be restricted to staying on trails in the Lamar Valley during periods of high elk and bison concentrations or in the Oxbow Bend area during the bald eagle nesting period. Existing authorities under title 36 of the *Code of Federal Regulations* allow park superintendents to restrict visitor activities, close or open areas to visitor use, and take other measures necessary to mitigate impacts on wildlife caused by visitor use.

All restrictions will be based on current research and the best available data specific to winter seasonal use of wildlife habitat. Restrictions will be reviewed annually and modified as needed.

Additional research and monitoring will be undertaken to further assess if visitor use is causing impacts on wildlife, to support the visitor use management process, and to develop management strategies to reduce identified impacts. Research may also indicate that impacts are less severe than previously thought, and restrictions may be reduced to reflect the new information.

PLOWED ROAD ACCESS AND STAGING AREAS

> ***Management Objective**: Provide winter automobile access to support a spectrum of winter activities, ensuring opportunities for winter scenic driving and access to the parks' snow roads and ski trails.*

The Park Service will continue to plow the road between Gardiner and Cooke City to maintain a winter scenic driving opportunity in Yellowstone and to provide skier access to trailheads, as well as to maintain community access for Cooke City residents. US Highway 191 through the northwest part of Yellowstone will also continue to be plowed for scenic driving, skier access, and through-traffic. The Yellowstone master plan policy of not plowing designated snow roads during the winter will be continued.

The road from Moran to the parking area near Flagg Ranch will continue to be plowed to provide access to the major staging area for oversnow trips into Yellowstone, as specified in the Rockefeller Parkway *General Management Plan* (NPS 1980).

Staging areas for the parks' snow road systems will be provided at strategic locations in cooperation with surrounding communities and adjacent national forests:

> People arriving at Yellowstone from the north along US 89 will continue to use the new Mammoth Terrace staging area. Parking and other facilities at that area are adequate to support forecast use levels for the life of this plan.
>
> For people traveling to Yellowstone from the east along US 20 through Cody, a new staging area will be established by others outside the park near Pahaska. The National Park Service will cooperate with the U.S. Forest Service and the state of Wyoming to establish this staging area when the highway is reconstructed.
>
> People reaching Yellowstone and Rockefeller Parkway snow roads from the south will be able to use existing and expanded parking near Flagg Ranch. Some parking will be available at the new Flagg Ranch lodge; however, most people, including all commercial operators, will park in the existing sites along the road or in the parking lot for the new contact station proposed in the Rockefeller Parkway *General Management Plan*, which will be plowed for winter use. This parking will be separate from and will not affect parking assigned to the Flagg Ranch concessioner for its customers.
>
> People traveling to Grand Teton snow roads from the south will continue to use the Cottonwood Creek staging area, which was recently reconstructed and expanded during road work on the Teton park road.
>
> For people traveling from the west, the community of West Yellowstone will be encouraged to establish designated parking for visitors desiring oversnow access to Yellowstone.

SNOWMACHINE USE

Continental Divide Snowmobile Trail

> ***Management Objective**: Allow persons using the state-proposed Continental Divide snowmobile trail to travel through the parks and experience the outstanding scenery, geothermal features, and wildlife populations on a trail that is consistent with NPS management policies.*

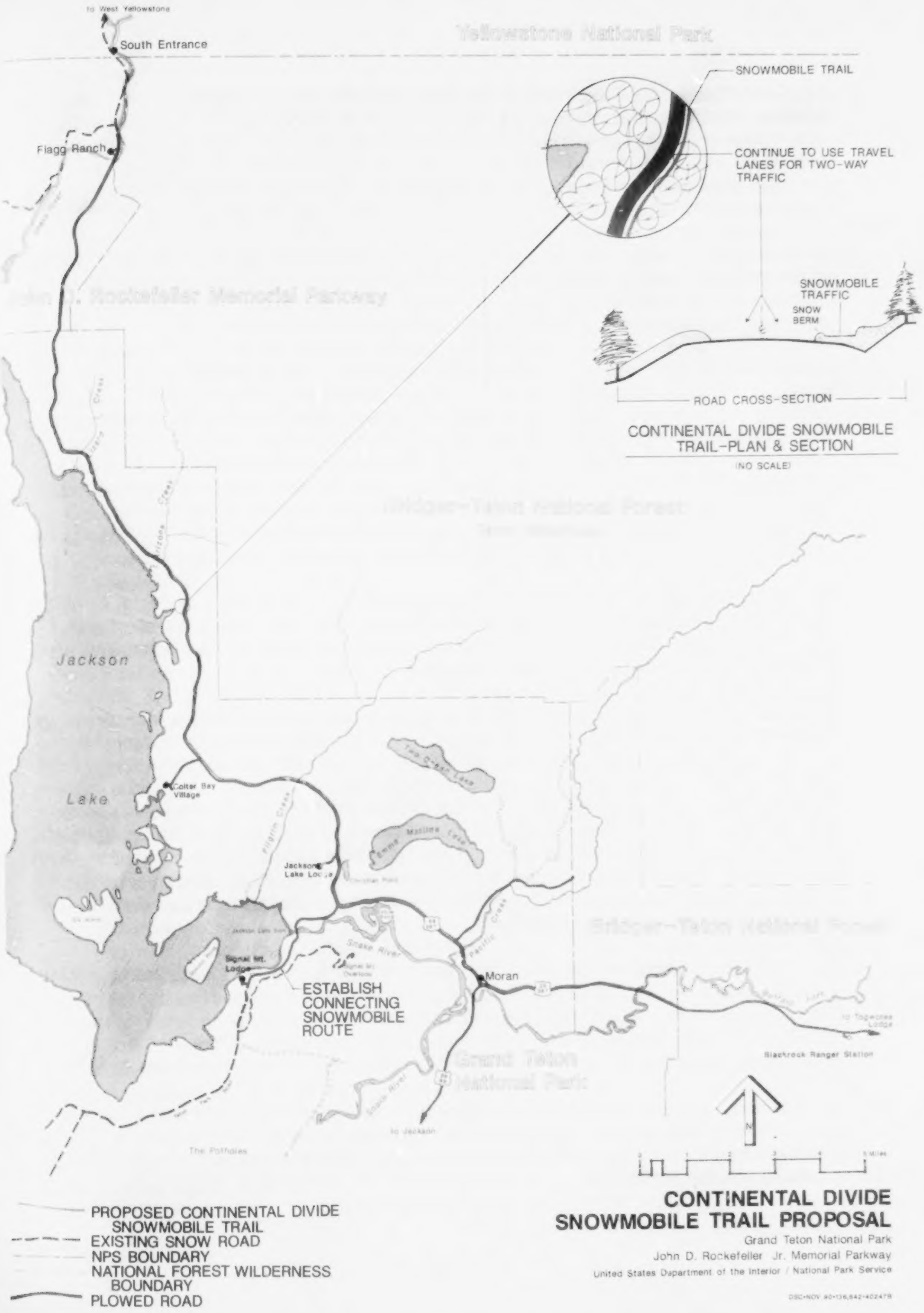
A route for the Continental Divide snowmobile trail through the parks is being established to allow visitors traveling the entire length of the trail to pass through the parks. Following are the provisions and specific actions associated with the Continental Divide snowmobile trail in the parks. Actual establishment, designation, and implementation of that trail in the parks will be subject to the availability of funds.

The proposed Continental Divide snowmobile trail will include a designated segment that follows existing roads through Grand Teton, Rockefeller Parkway, and Yellowstone. Like all snowmobile trails through national parks, this trail will be consistent with NPS policy and regulations, which direct that snowmobiles are allowed only where authorized by special park regulations and only on designated routes and frozen water surfaces that are used during other seasons by motorized vehicles and motorboats.

Consistent with this policy, the Park Service proposes that the Continental Divide trail follow the route of US 89/287 between the east boundary of Grand Teton and the staging area near Flagg Ranch (see the trail proposal map). Traffic lanes along this route will continue to be plowed for cars and trucks, and in addition, the National Park Service will groom a strip on the east/north side of the traffic lanes to provide a suitable surface for snowmobile travel. Between Flagg Ranch and West Yellowstone the Continental Divide snowmobile trail will follow the existing designated snow road, which is open to oversnow vehicles only. There will be only one route for the Continental Divide trail through the parks. No spur routes will be designated, although there will be connections from the trail to other snow roads in all three parks.

The trail segment along US 89/287 will use the width of the existing roadway (ditches, cut slopes, fill slopes, and other areas disturbed by road construction). Snowmobile travel along this route will require removal of some trees that have encroached into the roadway over the last 20-30 years and not been removed because of limited road maintenance budgets. These trees should be removed in any case to reduce potential hazards to motorists, restore sight distances, and maintain high visual quality standards along the road. No large mature trees will be removed. No earth moving will be required for the snowmobile trail, and the tread will not be detectable in the summer.

It is anticipated that when the roads from the east boundary of Grand Teton to Moran and from Moran to Flagg Ranch are reconstructed over the next 5-15 years, the current road design standards will require some widening of the shoulders and bridges. It is assumed that these standards will accommodate the projected use of the Continental Divide snowmobile trail. However, if additional widening is required, it will be assessed as part of the environmental analysis of the road reconstruction project, and a decision will be made at that time about whether the impacts would be acceptable. The Buffalo Fork highway bridge is maintained by the state, and this crossing will remain a state responsibility. Temporary, seasonal bridges will



CONTINENTAL DIVIDE SNOWMOBILE TRAIL PROPOSAL

Grand Teton National Park
John D. Rockefeller Jr. Memorial Parkway
United States Department of the Interior / National Park Service

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be used to cross Buffalo Fork and Pacific Creek until the highway bridges are reconstructed. While the temporary seasonal bridges have not been designed, they will probably be factory-built lightweight single-span metal frame units with wood decking. They will be 8-10 feet wide and 30-50 feet long. They will be hauled in on a flatbed trailer and installed, used, and removed under low-flow conditions. Snowbridges are not feasible at these stream crossings because of open water during the snowmobile season.

The use of areas immediately adjacent to traffic lanes and some highway bridges for portions of the trail will require a revision of Wyoming state law, which prohibits snowmobiles on the main traveled roadway of state highways. Winter automobile traffic, which is currently about one-tenth the summer traffic, will be more intensively managed. Speed limits will be lowered during the winter along this segment of the highway, and oversnow vehicles will be limited to snowmobiles between the east boundary and Flagg Ranch, to increase safety and improve the opportunities for appreciation of park resources. A special park regulation will be issued following completion of this plan legally authorizing snowmobile use along the designated route and specifying how it will be regulated. Signing will be increased during winter to improve safety, warn travelers of hazards, and provide basic directional and regulatory information in the parks. Because the Continental Divide trail route will be groomed and follow existing roadways, it will be quite obvious in the parks during winter; therefore, no reassurance markers will be needed. Simple directional signs at snow road intersections will suffice. No signs or markers promoting the Continental Divide trail will be installed.

Special techniques will be needed to combine plowing and grooming operations along the road. The surface groomed for snowmobiles will be 10-12 feet wide, with some short stretches only 8 feet wide where roadside constraints dictate a reduced width. Occasional wide spots or turnouts will be provided for snowmobilers to stop or turn around.

Staging for snowmobilers accessing the Continental Divide trail in the parks will be near Flagg Ranch at the existing plowed area along the road and the proposed visitor contact station. A smaller staging area for noncommercial users only will be designated in the existing parking area at Jackson Lake Lodge. Snowmobilers embarking from this lot can avoid a highway crossing by using an existing horse trail underpass near the lodge. Commercial operators, such as those offering guided snowmobile trips, will be permitted to travel through the parks on the Continental Divide trail, but because of the limited capacity of the shared roadway through Grand Teton, the only place within the parks where they will be allowed to access the trail will be the staging area near Flagg Ranch. A temporary seasonal contact station will be installed at the Moran ranger station.

Plan implementation will also require administrative facility improvements, such as trail groomer and snowmobile storage buildings, fuel facilities, and winterized employee housing (all of which would be sited in existing developed areas), and an increase in operating funds for the park. Facility, staff, and equipment needs are itemized in appendixes B and C. Funding from external sources will be encouraged to cover the extra costs for the snowmobile trail.

The operating season for the trail will depend on adequate snowfall to ensure resource protection and visitor safety. In average snow years the trail should be usable between the Christmas holiday and President's Day weekend, but in low snow years the season may be shorter.

Additional visitor use generated by snowmobilers traveling on the Continental Divide trail is anticipated to be somewhat limited during the next five to ten years. An estimate of use levels is contained in the "Environmental Consequences" section of this document.

The Continental Divide trail operation will be reviewed after three to five years to determine if actual use levels justify the operational expense and management problems inherent in a roadway trail. If use levels are extremely low, it may be more cost-effective and acceptable to visitors to offer a shuttle service to Continental Divide trail users through Grand Teton National Park. Because there will be no permanent construction for the trail tread, this conversion would be relatively simple.

The visitor use management process will be initiated in Grand Teton concurrently with the operation of the Continental Divide snowmobile trail. If significant adverse effects are identified, the option of shuttling snowmachines on trailers will be implemented immediately. The trail will not be moved outside the roadway or into the backcountry for any reason.

Other Snowmachine Areas

> ***Management Objective**: Provide opportunities for snowmachine uses that promote the desired visitor experience, protect park resources, and comply with the NPS snowmobile policy.*

Consistent with national NPS management policy and regulation, snowmobiling will be permitted only on roadways and the frozen surface of Jackson Lake. The Potholes snowmobile area will be closed to off-road travel as soon as possible pending revision of the special regulations. The current off-road snowmobile use of the 16,000-acre Potholes area is a major and unique exception to the NPS snowmobile policy adopted in 1978. The use predated the policy and was allowed to continue through a special regulation that was established about 10 years ago but will now be revised to be consistent with this plan.

Snowmachines are managed by the Park Service as a mode of transportation, similar to cars in the summer, to access special park resources, such as thermal areas, wildlife viewing areas, and scenic overlooks. There are no thermal areas or significant wildlife viewing opportunities in the Potholes area, and the spectacular mountain scenery near the Potholes can be readily viewed from nearby park snow roads and plowed roads.The snow play activities that occur in the Potholes do not relate directly to the special park resources. Extensive opportunities for snow play with better snow conditions and greater variety of terrain exist on national forest lands 15 miles east of the park, where open snowmobiling is allowed and encouraged in many areas.

Use of the Potholes has declined over the past decade to less than 500 visits per year. Minimum snow depth requirements allow the area to be open only a few weeks each year; and in low snow years the area does not open at all. Given the minimal amount of use in the Potholes, it should not be necessary to establish additional snow play areas in adjacent national forests to accommodate the use displaced from the park. In recent years when the Potholes did not open due to low snowpack, snowmobilers made use of other nearby areas. In average years the Potholes is only open for a portion of the winter, usually late in the season; therefore, snowmobilers are already using other areas much of the time.

All the existing Yellowstone snow roads will remain open to snowmachine use (see the Proposed Winter Use and Facilities map for the locations of these roads). Snow roads in Yellowstone will be groomed to identify routes, improve the visitor experience, keep visitors on the roads, protect wildlife, and increase safety. The Mount Washburn road over Dunraven Pass will remain closed to all vehicles in winter because of avalanche hazards, extremely high grooming costs, and related safety concerns.

Major snow roads in the other parks include the Reclamation road in Rockefeller Parkway and the Teton park road and Jenny Lake road in Grand Teton National Park. To offer the alternative of a primitive snowmobiling experience and to keep maintenance costs reasonable, the snow roads in Grand Teton and Rockefeller Parkway will remain ungroomed, with the possible exception of the Reclamation road, which may be groomed by the state. Much of these roads are in open areas that quickly become drifted over and would require frequent grooming to maintain a packed trail. Leaving the roads ungroomed will fit well into the desired spectrum of visitor experiences discussed above.

A connecting snowmobile route will be established in Grand Teton to link the Continental Divide snowmobile trail to the snow roads on the Teton park road and the Jenny Lake road. This connector will run from the Jackson Lake junction, near Jackson Lake Lodge, to Signal Mountain Lodge along the route of the Teton park road (the road over the Jackson Lake Dam). It will be maintained and operated in a manner similar to the segment of the Continental Divide snowmobile trail through the park.

The Park Service will not establish additional snowmachine trails in Yellowstone, Rockefeller Parkway, or Grand Teton beyond those discussed in this plan and identified on the proposed winter use map except where the visitor use management process indicates that impacts will not exceed desired limits. New snowmachine routes would be established through an amendment to this plan and the special regulations governing snowmobile use in the parks. The public would have an opportunity to comment on possible new routes. Minor revisions to routes could be made through revisions to park regulations without an amendment to this plan.

Snow roads will be open to visitor oversnow traffic no sooner than December 1 to allow adequate time for park staff to prepare for winter operations. Snow roads will begin closing to visitor traffic after the first weekend in March, and all snow roads will be closed on or before the third weekend in March to allow adequate time for snowplow operations in preparation for spring road openings for wheeled vehicles. Seasons may be shorter in low snow years but will not be extended in high snow years, and they may be shortened in any year for resource protection purposes. Yellowstone currently manages visitor and employee use in areas of spring bear activity to avoid conflicts. The winter visitor use season will not be extended in high snow years at the request of local businesses or other interests.

Commercial snowmobile tours of the parks will be managed to control use levels. Authorization may be granted for the national park segment of guided trips along the Continental Divide snowmobile trail. At this time there is insufficient demand to authorize additional commercial snowmobile tours in other areas of Grand Teton.

Frozen water surfaces in Yellowstone, Rockefeller Parkway, and Grand Teton (except Jackson Lake) will continue to be closed to oversnow vehicles.

Snowplanes will continue to be allowed in Grand Teton under a permit system. For safety reasons, they will be restricted to Jackson Lake and will not be permitted on snowmobile routes. Permits issued for machines registered for the first time after this plan is approved will require that snowplanes meet snowmobile noise standards, currently 78 decibels on the A-weighted scale (db(A)). Snowplanes registered prior to plan approval must meet a noise standard of 86 decibels.

Snow Coaches

> ***Management Objective***: *Provide snow coach service at a reasonable cost to visitors as an alternative to snowmobile and ski access to the Yellowstone interior.*

Modest increases in snow coach use will be accommodated as a way of providing mass transit for visitors wishing to access park features and interpretive tour opportunities in the park.

Yellowstone staff and the park concessioner will continue to work cooperatively to seek and test new technologies that will reduce the cost of snow coach operations.

Current snow coach routes in the park will be retained. New snow coach service to the east gate of Yellowstone is not proposed. The demand for service to the east gate is expected to be limited during the next ten years, and such service would result in a significant increase in park operations and maintenance costs associated primarily with avalanche control at Sylvan Pass.

Future consideration of adding snow coach routes will be based on the visitor use management process and an economic analysis to ensure that snow coach service would be financially feasible, safe, and cost-effective for the visitor, concessioner, and Park Service.

Noise

> ***Management Objective***: *Reduce noise levels while allowing snowmachine access to park features and developed areas.*

The National Park Service will maintain and upgrade its capability to enforce existing noise standards. Additional monitoring equipment will be acquired to test noisy machines. The Park Service will continue patrols and enforcement of speed limits for snowmachines, especially near developed areas, where noise from revving engines has greater impacts on other visitors and employees living in those areas. A noise monitoring program will be established to identify specific problem areas and to provide information needed to develop management strategies for reducing noise impacts. This will be an important element of the visitor use management process described above.

The park staffs and concessioners should operate vehicles that are as quiet as possible, given the latest technology and its availability. They will, at a minimum, meet the same standards required for private machines.

The Park Service will encourage the snowmachine industry, rental agents, and interest groups to research and develop new technologies, such as quieter engines or add-on mufflers, to lower noise levels on snowmachines.

SKIING, SNOWSHOEING, AND HIKING

> ***Management Objective***: *Encourage nonmechanized forms of travel, such as ski touring, snowshoeing, and hiking, that allow visitors to leave the plowed roads, snow roads, and developed areas and to experience the outstanding park resources and the extensive opportunities for quiet and solitude of the backcountry in winter.*

Visitors will generally be encouraged to ski, snowshoe, and hike throughout the parks except where these activities must be restricted to protect wildlife, geothermal features, and other park values and to avoid significant safety hazards.

Ski trails may be designated and marked to increase safety, improve the visitor experience, and channel people away from sensitive park resources. Ski trails that follow summer roads (visitor or administrative) may be groomed using a snowmachine. Ski trails may also be packed by park or concessioner staff on skis to help keep visitors on trails in sensitive wildlife areas or to aid in visitor orientation. Machines will not be used to groom trails that do not follow summer roads. Because machine grooming is restricted to roads used by motor vehicles in the summer, most of the natural zone and all of the wilderness zone will not be open to machine grooming.

Designated ski trails outside proposed wilderness areas will continue to be well marked. Ski trails in wilderness zones generally will not have special supplemental markers or signs for winter use. Skiers will use their own skills, topographic maps, and the existing summer trail-marking system to keep oriented in the wilderness zone during winter.

Use of sled dogs will be regulated by the park superintendents to avoid impacts on wildlife and to minimize conflicts with other users.

No additional support facilities, such as cross-county ski centers or warming huts, are needed in Grand Teton because these types of facilities are provided by businesses immediately outside the park.

CONCESSION FACILITIES

Lodging/Food Service

> ***Management Objective***: *Provide the minimum quantity of accommodations and services necessary to facilitate the desired high-quality visitor experience.*

Except as discussed below for Flagg Ranch, existing winter overnight capacities will not be significantly increased in the parks until the visitor use management process is operational and indicates that the impacts of increased capacity will remain within acceptable limits, and until there is a demand for winter lodging that cannot be met by the private sector outside the parks. The basic Concessions Policy Act standard for assessing additional concession services is that they must be "necessary and appropriate." Generally, additional needs for winter lodging and food service should be met by businesses in communities outside the parks, where there is often excess capacity during the winter months.

This plan amends provisions in the *Development Concept Plan* for the Snow Lodge at Old Faithful (NPS 1985). This facility, which is poorly designed for winter use, functionally obsolete for visitor lodging, and aesthetically inappropriate to the character of the Old Faithful Historic District, will either be rehabilitated or removed and replaced to provide winter visitor lodging. If the existing structure is removed, it will be replaced in the vicinity of its present location with a facility that includes food service, gift sales, warming hut space, equipment rental space, and related functions. The Four-Seasons Snack Shop will also be removed and replaced in the new lodge building or in another new or existing facility nearby. This redevelopment could be accomplished in several ways. The details of the lodging/restaurant proposal for Old Faithful will be determined through further planning and design work. If the structure is to be replaced, planning will be accomplished in compliance with environmental protection laws and regulations. Rehabilitation is already covered in the 1985 *Development Concept Plan*. Any work in the Old Faithful Historic District will be subject to cultural resource compliance procedures and the secretary of the interior's standards for historic rehabilitation.

For the expected life of this plan, lodging at Canyon Village will not be made available in winter. A future decision to open Canyon lodging during the winter would have to be based on a demonstration of increased demand and a determination, made through the visitor use management process, that impacts would remain within acceptable limits. That being the case, this plan would be amended or revised through an environmental assessment subject to public review.

Winter lodging and food service at Flagg Ranch will be redeveloped as authorized in the Rockefeller Parkway *General Management Plan* (NPS 1980). New facilities will be constructed on the bench above and north of the existing site. The recently executed contract for concession services at Flagg Ranch authorizes up to 150 winterized lodging units, compared to the 30 lodging units that are currently open in the winter. The lodge complex will also include a restaurant, gas pumps, a store, snowmobile rentals, and related winter services. The greater total overnight capacity authorized in the *General Management Plan* (up to 350 units) will be approved for winter use only if the visitor use management process indicates that impacts will not exceed acceptable limits.

Currently there is insufficient need for additional winter lodging or food service in Grand Teton National Park. Lodging demand generated by users of the Continental Divide snowmobile trail is expected to be limited and should be accommodated at Flagg Ranch or facilities outside the park, such as Togwotee Lodge. Any future proposals for additional winter lodging will be assessed through the visitor use management process and an amendment to this plan. Alternative B in this *Environmental Assessment* evaluates additional winter lodging in the parks.

Gas

> ***Management Objective**: Provide dependable supplies of gasoline for sale at existing developed areas in the parks to serve snowmobile travelers throughout the winter.*

Gasoline will continue to be available at Mammoth, Canyon, Old Faithful, Flagg Ranch, and Signal Mountain. To accommodate the modest growth rates forecast for the next ten years, additional existing stations may be opened in winter, or other methods of avoiding the impacts of increasing the gas storage capacity in the parks may be explored.

If there is sufficient demand, the Jackson Lake Lodge station may be opened in the winter to provide gasoline service to snowmobilers using the Continental Divide snowmobile trail.

NPS VISITOR FACILITIES

Warming Huts

> ***Management Objective**: Provide warming huts at reasonable distances along the snow road system to increase safety, enhance interpretation, and improve the visitor experience.*

Warming huts will be provided at West Thumb, Old Faithful, Madison, Norris, Indian Creek, Canyon, and Lake/Fishing Bridge. The only new location in this group is Norris. Food and beverage service will be provided at the huts in Madison, Old Faithful, and Canyon. Warming huts will be at convenient locations but sited off the Grand Loop road. Where practical, permanent huts will be in existing structures that have year-round uses. The Norris and possibly other replacement huts may be seasonal structures hauled in for the winter. No warming huts will be provided in Grand Teton.

Interpretive Facilities and Services

> ***Management Objective**: Interpret the outstanding natural and cultural resources under winter conditions in the parks, and provide essential information, orientation, and safety messages to park visitors.*

Interpretive information will be provided at all major stopping points. When fully staffed, warming huts and visitor centers will offer a variety of interpretive services. An existing building at Canyon will be winterized or a new facility constructed to supplement interpretive services and other functions now offered at the Old Faithful, Mammoth, and Moose visitor centers. If a new facility is constructed, planning will be accomplished in compliance with environmental protection laws and regulations.

To maintain visitor access and safety, snow removal will be continued at waysides and walks where it is practical and will not adversely affect thermal features or other park resources. Most summer walkways will not be cleared of snow but will remain available for visitor use.

Concessioner employees providing guide service will receive interpretive training and evaluation in the winter, as they currently do in the summer.

Camping Areas

> ***Management Objective**: Provide a spectrum of winter camping opportunities in the parks.*

Backcountry camping in the parks will be managed through the established backcountry permit systems to restrict the number of parties camping in designated areas.

A portion of the developed campgrounds accessible by plowed roads at Mammoth and Colter Bay will be used for winter camping. Developed campgrounds accessible by snow roads may be used for winter camping if vault toilets or other year-round restrooms are available for winter use.

ADMINISTRATIVE SUPPORT

Ranger Stations

> ***Management Objective**: Provide adequate winterized facilities for operation of ranger offices needed in winter at major developed areas.*

To supplement existing winterized ranger stations at Lake and Mammoth, winterized stations will be provided at Grant Village, Old Faithful, Norris, Canyon, Flagg Ranch, Colter Bay, and Moran. Where feasible, ranger stations will use existing buildings.

Employee Housing

> ***Management Objective**: Provide winterized permanent housing with appropriate amenities for year-round employees.*

Existing employee housing will be rehabilitated or replaced to adequately accommodate winter residents' needs for garages, storage space, and climate control. All government-owned trailers will be replaced with permanent housing.

Additional facilities will be added to meet winter residents' needs for indoor recreation.

The Undine ski area will be maintained for community use, but it will not be expanded.

Winter needs will be considered in all new community plans and housing designs. Those plans will be subject to appropriate environmental compliance before implementation.

Maintenance Facilities

***Management Objective**: Provide adequate winterized maintenance facilities to support winter operations.*

All of the existing maintenance buildings in the interior of Yellowstone (except at Grant Village) were built for summer season operation. They are poorly insulated, have single-pane windows, and are of insufficient size to allow for indoor heated storage and maintenance of the road grooming equipment and snowmobiles. There also is inadequate indoor heated space for general indoor maintenance work and projects that should or could be done in the winter. Maintenance facilities at all developed areas with winter operations will be winterized or replaced with facilities built to winter standards. This will include necessary winter storage for groomers and snowmachines and winter shop areas. More detailed plans will be developed for these facilities and will be subject to appropriate environmental compliance before implementation.

Emergency Services

***Management Objective**: Increase oversnow emergency service capabilities to support winter operations.*

Oversnow vehicles will be acquired as suitable technology is available for ambulances and transport of structural-fire-fighting equipment.

Search-and-rescue equipment and storage caches in major developed areas will be expanded to protect winter visitors.

Telephones will be provided at warming huts and visitor centers. They will be accessible from outside the buildings to make them available even when the facilities are closed.

The National Park Service will continue to provide information that will increase visitor awareness about the risks of winter travel in the parks.

Staffing

***Management Objective**: Provide adequate staff during the winter to support visitor use and park operations.*

Park staff will be increased to reflect the recent growth in winter operations and to prepare for the modest forecast growth in visitor use (see appendix C). Some increased use will be made of volunteers for noncritical winter staffing needs. These volunteers will supplement and not replace the minimum necessary NPS staff.

ALTERNATIVES

This section describes three alternatives to the winter use plan described in the previous section: Alternative A would reduce facilities and use levels, alternative B would increase facilities and use levels, and alternative C would continue existing management. The descriptions concentrate on where the alternatives differ from the plan. These alternatives also consider relationships to other lands in the greater Yellowstone area.

ALTERNATIVE A: REDUCED USE LEVELS AND FACILITIES

Visitor Experience/Use Levels

This alternative would place greater emphasis on maintaining and restoring quiet and solitude in the winter throughout the parks. Facilities would be reduced, and use levels in Yellowstone would be controlled through a permit system similar to the backcountry management system for Yellowstone and the river management systems in other areas of the national park system. This management strategy would be expected to result in about 10 percent less use than what would occur if no action was taken. Because use would not be allowed to increase, a formal visitor use management process would not be required under this alternative.

Wildlife Effects

The effects of winter use on wildlife would be managed by more aggressively closing sensitive areas to all human use. No-stopping zones would be established on snow roads to reduce potential disturbances to wildlife in snow road corridors.

Plowed Road Access and Staging Areas

There would be no change in access or in the staging areas located in the parks. Reduced use levels would be expected to eliminate capacity problems at the staging areas.

Continental Divide Snowmobile Trail

No new snowmobile routes would be allowed. Snowmobilers using the Continental Divide trail would be required to trailer their machines through Grand Teton and Rockefeller Parkway up to the staging area near Flagg Ranch. Commercial operators would be authorized to offer shuttle services through the parks under commercial use licenses or concession permits.

Other Snowmachine Areas

The Potholes snowmobile area would be closed, consistent with the NPS snowmobile policy and regulation. The Teton park road and Jenny Lake road would be converted to ski trails. The remaining minor snow roads in Grand Teton and the Reclamation snow road in Rockefeller

Parkway would remain open and ungroomed. Snow road grooming would be reduced in Yellowstone to reflect lower visitor use and to discourage use in selected areas.

Snow Coaches

Snow coach operations would be reduced. The demand for this service would be expected to decrease if winter overnight accommodations were removed from Yellowstone, as they would be under this alternative (see below).

Noise

Noise levels would be decreased by tightening standards and developing new technologies, similar to the plan. Reduced use levels and facilities would be expected to assist in reducing perceived noise problems.

Skiing, Snowshoeing, and Hiking

Ski trail grooming would be discontinued in Yellowstone and not initiated in Grand Teton or Rockefeller Parkway. Trail marking and signing would be minimal.

Concession Facilities

Winter overnight lodging and restaurant capacity would be reduced. The Snow Lodge and Mammoth Motor Inn would be closed in winter.

There would be no change in gas station operations or storage capacity in the parks. Reduced facilities and use levels would alleviate the need for greater winter storage capacity, and visitors would be warned of gas supply problems, as they are now in late winter.

NPS Visitor Facilities

Warming huts would be deemphasized in this alternative. The seasonal huts at Madison and Canyon would be removed, and food service would not be offered at the remaining huts. There would be fewer winter interpretive services at Madison and Canyon.

Administrative Support

Administrative needs for winter ranger stations, employee housing, emergency services, and staffing would be dealt with in a manner similar to the plan. Staffing and facilities would be brought up to levels adequate to support the anticipated levels of visitor use and development.

ALTERNATIVE B: INCREASED USE LEVELS AND FACILITIES

Visitor Experience/Use Levels

This alternative would place greater emphasis on social visitor experiences. Although there would still be extensive opportunities for visitors to find quiet and solitude, those opportunities would be limited more to backcountry areas than they are now. Under this alternative, managers would allow use to expand with demand, and additional facilities would be provided to accommodate and facilitate increasing use. This management strategy would be expected to result in about 15 percent more use than what would occur if no action was taken. As in the other alternatives, however, use would be expected to stabilize, and winter use would remain much lower than summer use.

Wildlife Effects

The effects of winter use on park wildlife would be managed and reduced through increased visitor information and education programs. No additional restrictions would be placed on visitors in winter wildlife habitats, except the minimum necessary to protect threatened and endangered species.

Plowed Road Access and Staging Areas

Staging areas would be improved as in the plan, but with greater capacities to accommodate increased use levels.

Continental Divide Snowmobile Trail

The Continental Divide snowmobile trail would be developed across Grand Teton and Rockefeller Parkway as an off-road trail (see the alternative B trail map). This alignment would require an exception to the NPS snowmobile policy and regulation. The trail would follow existing power line corridors for part of its route and go cross-country for part of the route. In some areas the trail would parallel the highway corridor 20-200 feet off the road shoulder. The trail corridor would be about 14 feet wide and would be groomed using a 10- to 12-foot-wide snowmobile trail groomer. Vegetation and other obstacles would be cleared to close enough to ground level to accommodate use from about December 15 to March 15 in an average snow year. Bridges would be required at Buffalo Fork and Pacific Creek to ensure a safe route that would be usable during most seasons. Other creeks in Grand Teton would be crossed under very low-flow conditions over snow bridges. The minimal flows in these creeks and in wetland areas freeze and are covered with adequate snow depths to create a usable snowmobile trail. The Snake River would be crossed on the highway bridge as in the plan. A major staging area for the Continental Divide trail would be provided at Colter Bay, where adequate parking and gas would be available in winter.

Existing Snowmachine Areas

Under this alternative the Potholes would remain open to snowmachine use under existing special regulations. The Teton park road, Jenny Lake road, and Reclamation road would all be groomed to help keep users on the snowmobile routes, increase safety, and improve the visitor experience.

Snow Coaches

Snow coach service in Yellowstone would be increased to accommodate increased demand. Scheduled service to the east gate would be initiated.

Skiing, Snowshoeing, and Hiking

Ski trail grooming would be increased and would include trails in Grand Teton.

Concession Facilities

Winter lodging and restaurant capacity in the parks would be significantly increased. At Canyon Village about 75 rooms and a restaurant would be opened in the winter. These facilities would be available as part of the 450-unit lodging and restaurant facility improvement program described in the *Canyon Village Lodging Redevelopment Environmental Assessment* (NPS 1988). The units that are currently being rebuilt would not be used for winter lodging. A later phase in the project, which includes a new check-in facility and restaurant, would be made available for winter use if this alternative was selected. At Colter Bay Village the new 60-unit inn and restaurant proposed in the *Colter Bay Development Concept Plan* (NPS 1989) would be opened in winter. At Signal Mountain Lodge about 40 units and a restaurant would be opened. These would be replacement lodging units authorized in the *Signal Mountain Development Concept Plan* (NPS 1989). At Old Faithful the Snow Lodge would be rehabilitated or removed and replaced as discussed in the plan.

The gasoline storage capacity would be increased at Old Faithful and Canyon. Gas stations at Fishing Bridge, Grant Village, and Colter Bay would also be open in winter under this alternative.

NPS Visitor Facilities

Warming huts would be provided as specified in the plan. Both the Canyon and Colter Bay visitor centers would be open in winter.

Administrative Support

Winter administrative needs would be met in a manner similar to the plan, except at levels commensurate with the greater winter use and development.

ALTERNATIVE C: NO ACTION

Under this alternative, winter use would be managed as it is now, without a special winter use plan. No new park policies would be adopted to help solve identified winter use issues, and no new (not previously approved) development could be undertaken. This does not mean that nothing would be done, only that existing management direction would be continued based on park general management plans (or master plans), servicewide policies, and NPS regulations. Existing winter overnight capacities would be continued, and no action would be taken to implement the Continental Divide snowmobile trail proposed by the state of Wyoming and snowmobile organizations. Further information about ongoing Yellowstone operations is contained in "Existing Winter Use Management Guidelines, Inventory, and Needs" (NPS 1989), which is on file at Yellowstone park headquarters at Mammoth, Wyoming, and the Rocky Mountain Regional Office in Lakewood, Colorado.

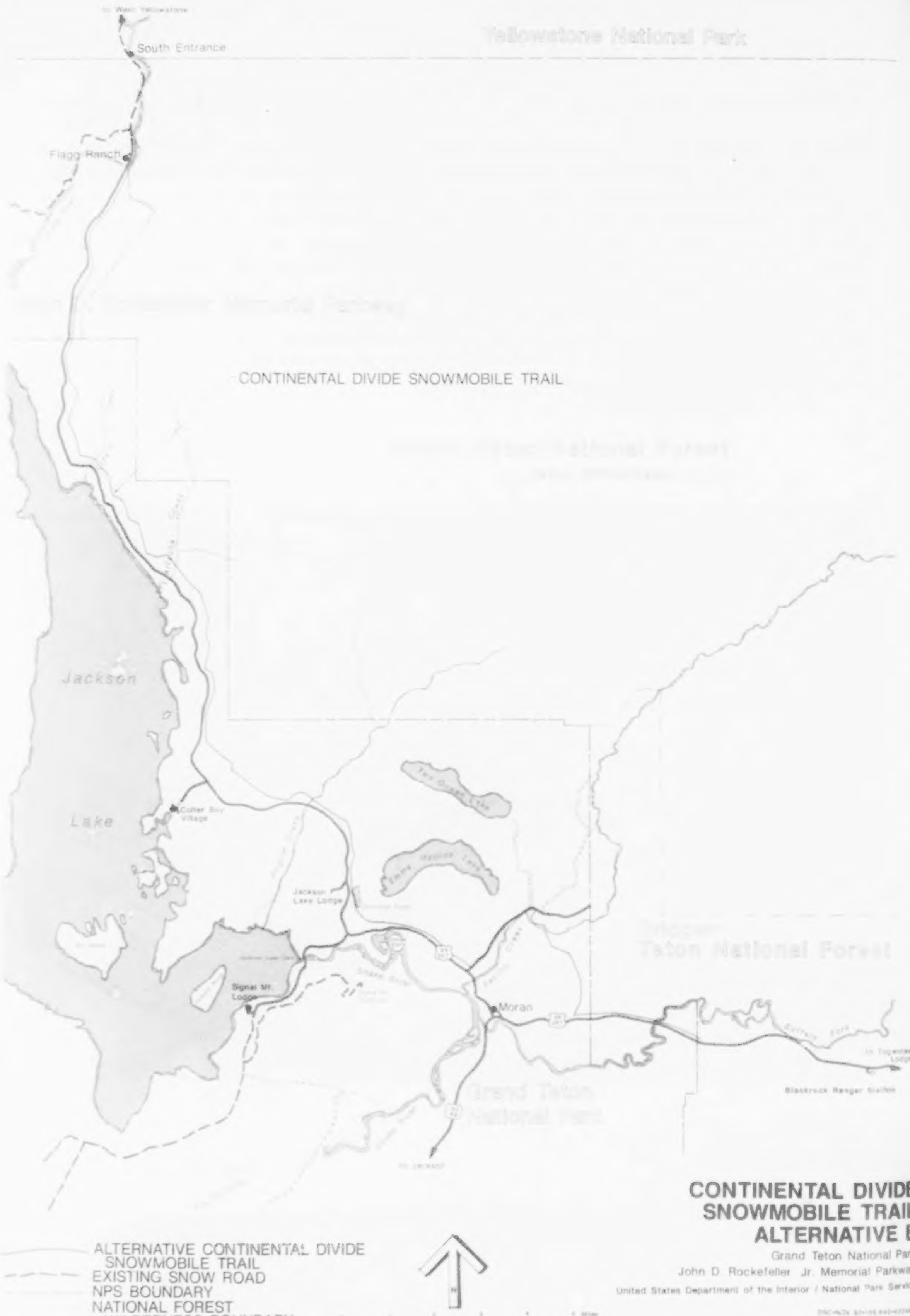

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Table 8: Summary of the Plan and Alternatives for the Winter Use Plan

Issue	Plan	Alternative A	Alternative B
Visitor Experience	Provide a spectrum of visitor experiences	Emphasize quiet and solitude throughout the parks	Emphasize a social experience
Use Levels/Capacities	Establish visitor use management process	Reduce use levels; establish permit system	Increase use levels
Wildlife Effects	Direct use away from sensitive wildlife areas	Close sensitive areas and reduce use in parks	Rely on visitor education programs
Access and Staging Areas	Increase parking to meet existing demand	No action	Increase capacity for additional growth
Continental Divide Snowmobile Trail	Use roadway through Grand Teton	Trailer machines through Grand Teton	Develop off-road trail through Grand Teton
Existing Snowmachine Areas	Close Potholes area to off-road snowmachine use; continue existing grooming	Close Potholes and convert Grand Teton snow roads to ski trails; decrease grooming in certain areas in Yellowstone	Keep Potholes open for off-road snowmachine use; groom snow roads in Grand Teton and Rockefeller Parkway
Snow Coaches	Provide service at approximately existing levels	Decrease snow coach service	Increase snow coach service, including new service from the east entrance of Yellowstone
Noise	Reduce snowmachine noise	Same as the plan	No action
Skiing and snowshoeing	Continue current grooming	Discontinue ski trail grooming	Increase ski trail grooming
Lodging/Restaurants	Rehabilitate or replace Snow Lodge and Four-Seasons Snack Shop	Decrease capacity: close Snow Lodge and Mammoth lodging and restaurants	Increase capacity: open Canyon, Colter Bay, and Signal Mountain facilities; rehabilitate or replace Snow Lodge
Gas	Maintain capacity at Old Faithful and Canyon	No action	Increase capacity at Old Faithful and Canyon and open Fishing Bridge, Grant Village, and Colter Bay stations
Warming Huts	Provide huts along snow roads at developed areas in Yellowstone	Remove seasonal huts; no food service at huts	Same as the plan
Interpretive Services/Facilities	Provide winterized facility at Canyon; use warming huts	No action	Open Canyon and Colter Bay visitor centers
Ranger Stations	Provide adequate winterized stations	Same as the plan	Same as the plan
Employee Housing	Provide sufficient winterized housing	Same as the plan	Same as the plan
Maintenance Facilities	Provide adequate winterized maintenance facilities	Same as the plan	Same as the plan
Emergency Services	Increase oversnow capabilities	Same as the plan	Same as the plan
Staffing	Provide adequate staff for winter operations	Same as the plan	Same as the plan

TABLE 9: CONTINENTAL DIVIDE SNOWMOBILE TRAIL ALTERNATIVES ANALYSIS

ISSUE	ROADWAY TRAIL (PLAN)	TRAILER MACHINES (ALT. A)	OFF-ROAD TRAIL (ALT. B)
NPS Policy	Consistent	Consistent (no trail)	Inconsistent and precedent setting (new off-road use)
Snowmobile Experience	Similar to driving road	Trailering disruptive to continuous snowmobiling experience	Trail riding/backcountry experience
Use Levels	Some increase	Lowest use levels	Highest use levels
Wildlife	Similar to existing road impacts	No effect	Backcountry wildlife habitat traversed by trail
Stream Crossings	2 temporary, seasonal bridges (would eventually use highway bridges)	NA	2 new permanent trail bridges
Vegetation Clearing	Some small trees and shrubs cleared from roadway	No effect	Trees and shrubs cleared from off-road areas
Required Earth Work	None	NA	Some excavation required
User Conflicts	Some conflicts with motorists	None	Potential conflicts with skiers
Slopes	Less than 10%	NA	Greater than 40% in places
Enforcement Problems	Speed limits; keeping users off travel lanes; easy patrol	No effect	Keeping users on designated trail; difficult patrol
Safety	Potential hazards with close proximity of traffic	Safest	Backcountry hazards, power pole obstacles
Construction Costs	Low (moderate for support facilities)	None	High (trail clearing, earthwork, and bridges)
Maintenance Needs	Increased NPS plowing/grooming	NA	Extensive trail grooming
Maintenance Costs	Increased NPS costs (potential for state reimbursement)	NA	Increased NPS costs (potential for state reimbursement)
Noise/Residential Use Conflicts	Similar to highway traffic; would pass near NPS communities	No effect	Noise in backcountry; away from residential areas
Season	Should be available for primary use season	Maximum season	Use may be restricted in lower snow years
Flexibility	Easily reversed or altered if needed	Easily reversed	Difficult to reverse
Trail Difficulty Level	Easy	NA	Difficult

ENVIRONMENTAL CONSEQUENCES

The *Winter Use Plan* primarily proposes rehabilitation with no significant increases in capacity. Unless otherwise specified, the impacts would apply to the greater Yellowstone area. Adjacent lands should be only minimally affected by the plan. The potential for unforseen additional impacts on adjacent lands will be addressed through ongoing planning processes for national forests and local communities in the greater Yellowstone area.

THE PLAN

Natural Resources

Thermal Areas. Thermal areas would not be affected. The only activity with potential for disturbance would be new construction at Old Faithful, and it would be confined to existing disturbed sites. Care would be taken to avoid construction impacts on thermal features. Adverse effects of visitor use on geothermal as well as other sensitive resources would be avoided through measures normally implemented to protect park resources.

Water Resources. Maintenance activity, including use of front-end loaders in the floodway during annual placement and removal of low-water, seasonal snowmobile bridges at Buffalo Fork and Pacific Creek, might result in minor amounts of temporary siltation. No significant impact would result. No fill material or concrete placement would be required. No other plan activities would affect surface streams, groundwater, wetlands, or floodplains. New facilities would be designed and managed to avoid effects on these resources. A study performed in 1980 indicated increased lead levels in compacted snow on Yellowstone snow roads (Aune 1981); however, no conclusions were drawn about the impacts on adjacent streams. New snowmobiles do not require leaded fuel, so future winter lead emissions and the potential for impacts on water quality during runoff should diminish.

Air Quality. Snowmachine exhaust emissions would continue and potentially increase proportionally to increasing vehicle traffic. Neither traffic levels nor exhaust emissions would increase dramatically as a result of this plan. Occasional periods of visible haze from snowmachine exhaust would continue in protected basins, such as around Old Faithful, during calm conditions or temperature inversions. Air quality would remain within the class I standards.

Soil and Vegetation. Some disturbance to soil and vegetation would occur from construction of new buildings, utilities, parking, and access roads needed for winter use. Approximately 90 percent of construction would occur on sites previously disturbed by construction or currently occupied by buildings, trailers, or parking that would be removed. Construction excavation would require removal of any existing topsoil or organic material, removal of vegetation, and permanent exclusion of vegetation by buildings and pavement. Areas disturbed for construction of utility lines would revegetate (except where under pavement or buildings). Disturbed areas adjacent to buildings and pavement would be reclaimed by regrading and replanting with native plant material appropriate to each area.

A total of approximately 2-5 acres would be affected by construction activities. Fewer than 3 acres of previously undisturbed sites would be affected. The vegetation cleared on these previously undisturbed sites would be predominantly lodgepole pine with an understory of grasses and forbs. Impacts would include vegetation removal, grading, filling, and development of impervious surfaces with buildings and pavement. Some additional land disturbance would occur near Pahaska Tepee on the Shoshone National Forest, where the proposed staging area would be developed. This effect would be assessed in the environmental impact statement being prepared by the state of Wyoming and the U.S. Forest Service for the highway reconstruction project.

The Continental Divide snowmobile trail would use the existing roadway, bridges, and parking lots and would not require additional earth moving. Little if any soil disturbance would occur. Intermittent short stretches of sagebrush, aspen saplings and immature trees, and lodgepole pine saplings and immature trees would be cleared along the road between the east boundary of Grand Teton and Flagg Ranch. This vegetation has regrown within the road corridor in the last 30 years after the last cycle of road construction disturbance. Tree clearing would be spread out over the entire distance of the route, but the total acreage of shrubs and trees that would have to be removed for the snowmobile trail would be only about 0.5 acre. Some additional clearing of shrubs and trees would be accomplished for general roadside maintenance at the same time that the snowmobile route was cleared. Any shoulder or bridge widening that might occur during future road reconstruction would be addressed in a separate environmental assessment.

Soil and vegetation disturbance and other impacts of the proposed Flagg Ranch parking area were analyzed in the *Assessment of Alternatives for the Proposed General Management Plan for the Rockefeller Parkway* (NPS 1977).

Closing the Potholes would eliminate the minor potential for damage to sagebrush that might occur when the area was open during minimum snow conditions.

Wildlife. In summary, no substantial impacts on mammals or birds would be expected to result from the plan. Stress to individual animals would be reduced by directing visitor use away from sensitive habitat areas. Impacts on wildlife outside the parks, such as road kills from visitor traffic approaching the parks, would not be significantly changed by the plan.

The greatest potential for conflict between winter use and wildlife is along rivers and valley bottoms and in the geyser basins, which provide frequently used wildlife habitat and are also often accessible to people by way of roads and trails. Bison, elk, and moose travel on groomed and plowed roads. This facilitates access to feeding areas and reduces energy requirements needed to move through deep snow; however, encounters with visitors sometimes result in the animals being driven for long distances rather than exiting the road corridors over the high berms, and this increases animal stress and energy consumption. Also, ungulates on winter range and waterfowl along rivers attract people, and a small percentage of visitors approach too closely, causing the wildlife to move away.

Whenever animals are forced to make extra movements and interrupt their feeding, it costs them spent energy that may be important for their survival and the health of the overall population. Normal winter conditions result in the use of stored fat reserves. The depletion of fat reserves can result in high winter mortality. Theoretically, stress and disturbances from humans could reduce fat reserves. However, there is no known documented evidence of reduction of large ungulate populations, mortality, or permanent abandonment of habitat as a result of recreational use by snowmobilers or skiers. Snowmobile noise may raise heart pulse levels of wildlife (Moen et al. 1982). However, noise alone does not appear to startle animals. One noise study found that snowmobiles had to be visible to deer before they moved away (Bollinger and Rongstad 1973).

Wildlife respond less to human disturbances that are predictable in time and space, and they are more likely to successfully adapt to such disturbances. Winter wildlife responses to visitors is an evolving process in the area. For example, a group of several hundred elk in the Mammoth area have lost their fear of humans during the past decade. Mammoth elk move only a fraction of the distance from humans that Lamar Valley elk move. These elk use habitats immediately adjacent to facilities or roads as much or more than distant habitats. The Mammoth elk group has the highest calf ratio of all the groups in the northern herd, and a sample of weights suggests that they are larger. Their habituation behavior appears to have resulted in a more complete use of habitats near park development, an increase in useable winter range, a population increase, and reduced stress on individual animals. However, habituation may also result in the use of unnatural food sources or human travel routes, and this departure from natural behavior could result in unnatural populations.

Under the plan the potential for animal stress would be reduced from existing levels as a result of continued and improved wildlife monitoring and visitor use management. Channeling visitors into a small number of well-marked snow roads, trails, and developed areas would increase the predictability of human behavior and should reduce stress responses by wildlife. Off-trail skiing, aggressive approaches to photograph wildlife, or outright harassment would be discouraged through public information efforts. Off-trail skiing, although it provides a rewarding wilderness experience, would be closely monitored to ensure that it did not unacceptably affect wildlife, particularly in geyser basins or river bottoms near roads in Yellowstone and in the Oxbow area in Grand Teton. Optional closures would be considered for such areas during periods when wildlife were particularly sensitive to human influence.

The increased overnight capacity at Old Faithful would cause slight increases in skier traffic on nearby trails and snowmachine traffic to and from the lodge. The increased human activity would not be great enough to significantly affect wintering wildlife. Current population levels do not appear to be noticeably affected by recreational use.

Roadside noise adjacent to the Oxbow area and other portions of Grand Teton and the Rockefeller Parkway would increase as a result of snowmobile traffic on the Continental Divide trail. Snowmobile traffic would not affect wildlife much differently than existing vehicle traffic along the road. Moose on winter range east of the Buffalo Fork and north of the highway would be subjected to some additional disturbance from snowmobile traffic; however, the snowmobile trail would follow the highway edge except for a short section leading to a seasonal snowmobile bridge across the Buffalo Fork a short distance upstream from the highway bridge. No substantial impact on moose would be expected.

Closure of the Potholes area to snowmobile traffic would have no effect on wintering ungulates because they make only negligible winter use of the area. A few coyotes that travel through the area might benefit from closure.

Threatened and Endangered Species. Bald eagles would not be affected. Nests in Yellowstone are generally in remote areas away from roads, and the nests near roads show little evidence of disturbance by people. Nesting territories close to winter use areas would continue to be monitored to prevent conflicts between eagles and winter visitors. In Grand Teton skiers would be restricted as necessary to avoid disturbing established nests. Closure of the Potholes area to snowmobiling would eliminate occasional illegal travel into the adjacent Snake River bottoms, where a pair of nesting bald eagles might otherwise be disturbed. No additional impact would be expected from visitor access into eagle foraging areas along roads and rivers.

Grizzly bears would not be affected. The potential for impacts associated with the projected small increase in human winter use would be minimal. Grizzly bears would be in a state of deep sleep for the majority of the time winter recreational activities were at their peak. Grizzly bears might on occasion be active for short times during the winter. However, the restrictions on snowmobile routes and locations, the grooming and marking of cross-country ski trails to channel visitor use, and the flexibility to restrict visitor use in or close to wildlife areas would provide adequate safeguards. Closing Yellowstone snow roads to public access by the third weekend of March, or sooner in certain areas as needed, would provide emerging grizzlies with time periods of minimal disturbance to feed on winter-killed carrion near roadways and developed areas. Opening winter snow roads to summer visitor traffic would occur no sooner than April 15 in Yellowstone. Grizzlies in Rockefeller Parkway and Grand Teton are rarely observed from roads and developed areas, and they would be unaffected by the plan.

Research indicates there has been some springtime avoidance by emerging bears of the area (and available carrion) within three miles of the Old Faithful developed area and within 0.25 mile of active roads in the Firehole and Gibbon valleys (Mattson and Henry 1987; Henry and Mattson 1988; Green 1988). Bears appear to avoid carrion near occupied roads and developed areas; however they also generally do not utilize 100 per cent of the available carrion in areas where there is no disturbance. The studies draw no conclusion about whether bear biomass is reduced as a result of nonutilization of carrion. Since June 1989 human use in the bear management area between Madison and Old Faithful has been regulated between March 10 and Memorial Day weekend. These stipulations would continue for the foreseeable future. There would be no expected negative impact on spring bear activity from use under proposed management, and continuing use restrictions might mitigate the displacement documented in the above studies.

Neither whooping cranes nor peregrine falcons would be affected. Both species are absent from the area during the winter use season, and spring/summer habitat would be unaffected.

The plan would have no effect on trumpeter swans. Oversnow travel restricted to groomed roadways adjacent to waterways has not affected swans in the past. The effect of recreational traffic on swans would continue to be monitored, and protection would be afforded where necessary.

Lynx do not use habitat near road corridors and would not be affected.

Cultural Resources

The Snow Lodge redevelopment would occur within and affect the Old Faithful Historic District. Modern buildings, roads, trails, and utilities would have an impact on nearby historic buildings, structures, and the district as a whole. These impacts would be mitigated by designing the new facilities to be compatible with the scale, texture, and continuity of the affected historic elements. Modern structures would be designed to meet the secretary of the interior's standards for rehabilitation and the NPS *Cultural Rescurce Management Guideline* whether the new construction was adjacent to or in the historic district. As discussed above, the redevelopment option would be subject to additional site-specific planning and compliance before implementation. Alternatives and their impacts on cultural resources would be more thoroughly analyzed at that time.

No other historic buildings or districts eligible for listing on the National Register would be affected under the proposed winter use plan.

The proposed winter plan would not affect known archeological resources. Winter activities normally occur on deep snowpack over frozen ground. New development for visitor use and administrative needs would occur primarily in previously disturbed areas. Before any ground-disturbing project or activity, a survey meeting the secretary of the interior's standards for archeology and historic preservation would be completed. A copy of the survey would be sent to the state historic preservation officer. If any sites were identified and could not be avoided, the procedures stipulated in title 36 of the *Code of Federal Regulations* (36 CFR 800) would be followed.

Ranger patrols and general visitor education would discourage vandalism and inadvertent destruction of cultural remains.

Visitor Use

The existing types of recreational uses would continue in all three parks, with continued modest growth of visitation over the life of the plan.

Experience. Visitors would have increased opportunities for snowmobiling in Grand Teton along the Continental Divide snowmobile trail. The new snowmobiling experience would be somewhat similar to driving the road in a car, but there would be greater opportunities to access snow road systems in the area. This beneficial effect would be partially offset by reduced opportunities for off-road snowmobiling in the Potholes area. However, snowmobilers visiting the Yellowstone area from outside the region appear to favor trail-riding opportunities. Off-trail opportunities are plentiful in nearby national forest areas, and the displaced Potholes users would likely shift there. The plan would bring Grand Teton into compliance with the comprehensive NPS visitor use policies and regulations for managing snowmobiling use throughout the system. Snowmobile safety on the Continental Divide trail would be a significant concern and would be monitored and controlled by posting speed limits and signs warning that the trail uses road shoulders and highway bridges. The trail surface would be narrower than the groomed Yellowstone snow roads but similar to trail segments outside the parks. The proposed trail would not require any highway crossings in the parks.

Travel by skiers and snowshoers might be restricted to marked trails in certain areas used by wintering animals. While this would limit access to off-trail skiing in these areas, many other areas would remain open to off-trail use. Most skiers prefer to stay on designated trails and would not be affected by this restriction. The potential for restriction might become greater as visitation increased.

The winter overnight lodging capacity would be increased at Flagg Ranch consistent with the Rockefeller Parkway *General Management Plan*. The overnight lodging capacities in Yellowstone and Grand Teton would not be significantly changed by this plan.

Use Levels. During the 1989-90 winter season, the three parks received approximately 122,900 visits. If the National Park Service took no further action to plan for and accommodate winter use in the parks, annual visitation would still be expected to increase by approximately 8,300 visits to a total of 131,200 visits by the 1994-95 winter season (average forecast, see table 2). If the plan was implemented, total annual use would be estimated to increase by an additional 3,000 visits to a total of 134,200 visits by 1994-95 (table 10). The plan would result in approximately 1,500 more annual visits by snowmobilers than the no-action alternative. This estimate of snowmobile use includes both the increase that would result from developing the Continental Divide trail (about 1,500-3,000 additional visits per year, assumed to be 2,000 visits per year for the purposes of this analysis) and the decrease that would result from closure of the Potholes to off-road use (about 500 fewer visits per year). Most of the new use on the Continental Divide trail would be day use by visitors staging out of Togwotee Lodge, Flagg Ranch, or the Jackson Lake Lodge parking area in Grand Teton. Based on experience with other long-distance trails around the United States, only a relatively small percentage of visitors would travel the full distance of the trail from the Lander area to West Yellowstone. The plan would also be expected to attract a small number of additional skiers as a result of improvements at Old Faithful.

TABLE 10: FORECAST INCREASE IN VISITOR USE, PLAN

EXISTING (1989-90)	FORECAST W/ NO ACTION (1994-95)	FORECAST W/ PLAN (1994-95)
122,900	131,200	134,200

Accommodating modest increases in use in the national parks would likely contribute to similar increases in winter use on adjacent national forest lands. Services would have to be increased to maintain current levels of quality. The additional use anticipated in the plan would not be likely to significantly affect adjacent areas.

Noise. Analysis of noise is an extremely complex discipline, and only general statements can be made without significant additional costs of data gathering and analysis. Noise is primarily an aesthetic concern, because wildlife species do not appear to be substantially affected by recreational use sounds (Bollinger and Rongstad 1973).

Existing noise sources are snowmobiles, snow coaches, snowplanes, snowplows, automobile and truck traffic on US 26/89/191 through Grand Teton, and aircraft noise (especially that associated with take-offs and landings of both private and commercial aircraft at the Jackson Hole Airport in Grand Teton). The following general statements can be made about changes likely to result from the plan.

Sound generated by snowmobiles and snow coaches would likely increase somewhat as visitor travel increased along or near snow roads, warming huts, and staging areas such as those at Mammoth Terrace, near Flagg Ranch, and at Cottonwood Creek. Estimated snowmachine travel in the parks within the next five years would be about 1,500 visits per year more than what would be expected if no action was taken. This estimate would include potential increases associated with use of the Continental Divide snowmobile trail and decreases due to closing the Potholes area. Under certain conditions, sound would continue to carry great distances across treeless areas, and the distant noise of snowmobiles, snowplanes, snowplows, and jet aircraft would continue to be audible in roadless areas, affecting cross-country skiers and snowshoers. This background noise might increase slightly and periods of silence might decrease somewhat as winter travel by aircraft and snowmachines increased.

At Grand Teton, about 2,000 snowmobiles per year on the Continental Divide trail would introduce a new source of roadside noise. The noise would be confined to the same road corridor between Moran and Flagg Ranch used by cars, snowplows, and buses, and to access points at Jackson Lake Lodge and near Flagg Ranch. Skier travel in the Potholes is limited, so the reductions in noise associated with closing that area would not affect many winter users. Confining snowmobile traffic in the Jenny Lake area to the Teton park road and the Jenny Lake road would shift snowmobile traffic from the east side of Timbered Island to the west side and expose cross-country skiers using the area west of Timbered Island and south of Jenny Lake to increased snowmobile noise.

Restricting snowplanes to the surface of Jackson Lake would have little effect on the existing use of snowplanes or the background noise they emit. Under some conditions noise from snowplanes would continue to carry great distances and would be audible from areas around the Colter Bay development and around the lake. Most persons out on the surface of the lake would be ice fishermen, who use either snowplanes or snowmobiles for travel. Newly registered snowplanes would be quieter to meet current snowmobile standards; however, it would take many years to phase out older, noisier machines.

National Park Service and concessioner investigations into more effective snowmobile mufflers might result in the capability to reduce noise with some minor reduction in power. This could potentially reduce the noise emitted by government and concessioner-owned snowmachines; the Park Service could require concessioners to use quieter rental machines if modifications could be easily made and were cost-effective. However, these would be a small percentage of the total machines used in the parks. Manufacturers might not voluntarily reduce vehicle noise emissions, since there is a general lack of public demand or pressure on the snowmobile industry for quieter machines here or in the northern midwestern states.

Current NPS regulations on snowmobile noise emissions (*Code of Federal Regulations,* title 36, part 2.18) are the same as the self-imposed manufacturing standards used by the International Snowmobile Industry Association. Snowmobiles manufactured after 1975 must not emit more than 78 decibels at 50 feet, at or near full throttle. Snowplanes (registered in the park after 1971) are allowed to emit noise at 86 decibels at 50 feet, at or near full throttle. In comparison, large motor vehicles (except snowplows and emergency vehicles) over 10,000 pounds are restricted by U.S. Department of Transportation regulations to emitting at 35 miles per hour no more than 86 decibels measured from 48 to 58 feet (49 CFR 325.7). Street motorcycles produced after 1986 are restricted to no more than 80 decibels (40 CFR 205.152). There are no federal noise standards for automobiles and small trucks.

Regional Economic Impacts

As stated above, the three parks received approximately 122,900 visits during the 1989-90 winter season. Based on survey data indicating that visitors spend an average of $60 per day during their total stay in the region, it is estimated that the nonregional winter visitors to Yellowstone, Grand Teton, and Rockefeller Parkway spent an estimated $5.3 million dollars in the greater Yellowstone area. As noted under "Local/Regional Economy" in the "Area Description," this is probably a low estimate. If the National Park Service took no further action to plan for and accommodate winter use in the parks, annual visitation would still be expected to increase by approximately 8,300 visits by the 1994-95 winter season (average forecast), and this increase would be expected to annually generate an additional $360,000 in visitor expenditures in the greater Yellowstone area.

The following economic analysis compares the economic growth that would be expected to occur under the plan and alternatives with the economic benefit that is occurring now, recognizing that this benefit will increase even under the no-action alternative. In fact, the differences among the alternatives are not as great as the differences between the existing situation and the growth projected to occur regardless of which alternative is implemented (see table 10). The figures are approximations based on the best available data and recognizing that the economic impacts of the three parks cannot be easily separated from the impacts of the surrounding recreational opportunities in the greater Yellowstone area. All economic figures are expressed in 1989 dollars.

Under the plan total forecast winter visitation to the three-park area in 1994-95 would be 134,200 visits. Total annual expenditures by nonregional residents would increase by $489,000. Local businesses in the greater Yellowstone area would also benefit from an increase in annual NPS expenditures of $1,162,000. Annual recurring economic benefit would result from visitor expenditures, annual NPS expenditures, and secondary expenditures (for example, the expenditures by restaurants that buy some of their supplies within the region). The expenditures associated with the plan would ultimately increase annual business activity within the 17-county area by $3,256,000, for a total of $11,445,000. This increase in economic activity would annually result in an increase of $1,534,000 for a total of $3,824,000 in employee income.

Relative to the no-action alternative, the plan would provide an annual increase of 3000 visits, $129,000 in visitor expenditures, $1,162,000 in NPS expenditures, $2,700,000 in total business activity and $1,378,000 in employee income. Teton County, Wyoming and Gallatin County, Montana would benefit more than the rest of the 17-county greater Yellowstone area.

Another, short-term benefit would result from construction projects amounting to $17,053,000. Assuming regional contractors did all this work, one-time total business activity within the 17-county region would increase by $23,708,000. This increase in economic activity would result in $6,398,000 in employee income in the region. Equipment purchases totaling $1,396,000

TABLE 11: ANNUAL ECONOMIC IMPACTS OF THE PROPOSAL: 1994 DISTRIBUTION BY ECONOMIC SECTOR IN THE 17-COUNTY GREATER YELLOWSTONE AREA (EXPRESSED IN 1989 DOLLARS)

ECONOMIC SECTOR	TOTAL BUSINESS ACTIVITY	EMPLOYEE INCOME
Agriculture	$121,378	$8,108
Forest Products	7,872	2,585
Metals	1,175	470
Fossil Fuels	284,820	24,323
Aggregate Materials	1,762	588
Phosphate Rock	0	0
New Residential Structures	0	0
New Industrial Construction	267,900	76,375
Food Processing	179,775	22,913
Apparel	10,223	2,938
Sawmills and Millwork	11,398	2,585
General Manufacturing	185,298	45,238
Petroleum Refining	383,873	14,688
Railroads and Related Sectors	50,643	22,325
Other Transportation	41,478	8,578
Motor Freight Transport	75,788	31,608
Air Transportation	25,145	6,110
Pipe Lines, except Natural Gas	18,330	1,528
Communication	105,985	39,128
Utilities: Gas/Water	619,108	63,685
Recreational Related Wholesale Trade	78,490	32,313
Other Wholesale Trade	639,670	263,318
Recreational Related Retail Trade	51,347	23,853
Other Retail Trade	886,068	411,955
Fire	1,045,633	108,452
Hotels and Lodging Places	1,507,055	434,397
Personal Services	681,970	284,585
Business Services	213,380	93,765
Eating and Drinking Places	1,572,267	455,900
Auto Services	1,232,575	332,290
Recreation Services	45,120	14,805
Education	20,210	11,398
Non-Profit Organizations	47,353	23,618
Public Services	54,050	29,493
Other Federal Government	10,575	2,468
Local Government	118	118
State and Local Electric	15,745	1,880
Other State and Local Government	32,900	7,520
Government Industry	908,158	908,158
All Other Industry	0	0
Household Industry	10,223	10,223
Inventory Valuation Adjustment	0	0
Total	$11,444,853	$3,824,273

would have a minimal regional benefit because they would be purchased primarily outside the region.

Impacts on Concessioners

Proposed lodging and food service development at Old Faithful would likely be constructed with capital improvement and maintenance program funds, which are provided by the concessioner (TW Recreational Services) as a concession contract requirement. Use of these funds for this purpose might displace or delay other capital improvements. Replacement of lodging and food service facilities would result in operating efficiencies for TWRS and a probable increase in income due to improved quality of rooms and size of dining facilities.

The snow coach operation is at best a break-even activity because of the heavy investment in snow coaches and high operating costs. A modest increase in snow coach use would have a modest positive financial impact unless additional equipment had to be purchased, in which case the impact would be negative. A successful breakthrough allowing for less expensive equipment and maintenance costs would greatly improve the ability of the concessioner to provide this service.

Other concession operations would not be significantly affected.

Cumulative Effects

The comprehensive planning for winter use considered the cumulative effects, or the sum of the incremental impacts, of winter recreation activities and the development and maintenance of support facilities for all three conterminous NPS units in the Yellowstone-Teton area. All three parks were included to avoid the possibility that decisions for one park might create an unexpected impact on another and to assess whether a series of individual actions for winter use might add up to a significant impact. One purpose of this environmental assessment was to analyze how the different kinds of potential impacts would interrelate and affect the environment as an entire system.

The plan would not contribute to any foreseeable, significant, cumulative effects that would be farther reaching than the effects described in this assessment. Summer-use developments would have no foreseen impacts on the winter environment, and vice-versa. The NPS does not anticipate that this plan when added to other past, present, or reasonably foreseeable future actions would result in substantial cumulative impacts either inside or outside the parks. The winter use plan is primarily a rehabilitation plan with no significant increase in capacity and only a modest forecast increase in visitor use. The potential for unforseen additional area impacts will be addressed through ongoing planning for the national forests and local communities in the greater Yellowstone area.

The National Park Service evaluated the Continental Divide snowmobile trail for effects on park lands and resources. This evaluation considered how the use of the trail both inside and outside the parks would affect park values. It also considered how the establishment of the trail inside the parks would affect use of adjacent forest lands and communities outside the parks. The analysis identified general effects of snowmobiling on wildlife, snowmobile safety concerns, effects of the Continental Divide trail on area use levels, and regional economic impacts, all of which are applicable to trail segments inside and outside the parks. The National Park Service has concluded there would be no significant foreseeable environmental effects to park lands and resources from implementation of the Continental Divide snowmobile trail. Implementation of the trail plan through the parks is subject to funding. If other agencies determine further analysis of the trail outside the parks is necessary the National Park Service will confine its participation in that effort to sharing information and analysis from this plan.

ALTERNATIVE A: REDUCED USE LEVELS AND FACILITIES

Natural Resources

Thermal Areas. Thermal areas would not be affected. This alternative would not involve significant new construction.

Water Resources. Future winter lead emissions and the potential for impacts on water quality during runoff would be slightly reduced by a small reduction in snowmobile use and increased use of newer machines that use unleaded gas. No other effects on water resources would result from this alternative.

Air Quality. Existing levels of emissions would be expected to continue, with occasional visible haze as in the plan.

Soil And Vegetation. This alternative would not result in any new disturbances to soil or vegetation. Removal of some facilities could result in site restoration.

Wildlife. More restrictive management of visitor use would further reduce the potential for skiers to disturb wildlife in sensitive habitat areas, such as geyser basins and the Oxbow area at Grand Teton. The incidence of individuals closely approaching animals might be further reduced by the overall decrease in Yellowstone skier traffic as a result of curtailment of lodging at Old Faithful. Controlling Yellowstone snowmachine traffic through a permit system would ensure little change from existing conditions regarding animals wintering near road traffic. Current population levels do not appear to be affected by recreational use, and this alternative would ensure that there would be little if any departure from the status quo over the life of the plan.

Threatened And Endangered Species. Closure of sensitive wildlife areas, similar to the plan, would ensure protection of threatened and endangered species from any potential disturbance.

Cultural Resources

No historic structures listed or eligible for listing on the National Register of Historic Places would be affected.

Visitor Use

Experience. The visitor experience would significantly change as a result of reductions in Yellowstone concession services. A large percentage of current overnight guests at the Snow Lodge are skiers. They would have to make day trips from gateway towns, since few people are willing to camp at Old Faithful during the winter. The shuttle time requirement for day trips from the place of lodging would effectively reduce the hours a skier could spend in the interior of Yellowstone. Skiers might also face more areas closed for wildlife protection, although if skier use fell off in Yellowstone, some additional closures might not be implemented in that park.

Snowmobilers would be less affected by elimination of in-park lodging because of their greater mobility and independence from snow coaches. However, quotas set for the permit system would limit their use to approximately the current levels, requiring more trip planning and introducing the possibility of not being able to obtain a permit, especially during popular times. This would be similar to difficulties river floaters have competing for limited permits in national parks or forests on popular rivers that have quota systems. Snowmobilers would no longer have access to the major snow roads or off-road snow play areas in Grand Teton, which would cause some potential visitors to have to relocate.

Removal of warming huts would reduce opportunities for shelter, with some increase in hazard and discomfort.

Opportunities for interpretation would remain unchanged.

Use Levels. Total annual use would be expected to decrease to about 118,200 visits (table 12). This would be about 13,000 fewer visits than would be expected if no action was taken. Because this alternative would require trailering snowmobiles through Grand Teton, annual use of the Continental Divide snowmobile trail in Yellowstone would be projected to be only about 500 visits by 1995. All of these visitors would be traveling from the Togwotee Pass area through to Yellowstone. This increase in snowmobile use would be more than offset by the decrease in use in the Potholes area and the closure of the Teton park road and the Jenny Lake road to snowmachines. Total snowmobile use in Yellowstone would also be expected to decrease slightly under a permit system compared to what it would be if no action was taken. Skiing would be expected to account for most of the 13,000 fewer visits per year because of the removal of overnight lodging at Mammoth and Old Faithful.

TABLE 12: FORECAST DECREASE IN VISITOR USE, ALTERNATIVE A

EXISTING (1989-90)	FORECAST W/ NO ACTION (1994-95)	FORECAST W/ ALTERNATIVE A (1994-95)
122,900	131,200	118,200

Noise. The slight decrease in snowmobile use forecast for this alternative would not noticeably affect noise levels near snow roads and staging areas or in the backcountry. Skiers using the unplowed Teton park road and Jenny Lake road would no longer hear snowmobile noise, as these routes would be converted to ungroomed ski trails.

Regional Economic Impacts

Under this alternative the total forecast winter visitation to the three-park area in 1994-95 would be 118,200 visits. Total annual visitor expenditures in the greater Yellowstone area would decrease by $202,000. However, this decrease would be more than offset by an increase of $794,000 in NPS expenditures. Annual total business activity within the 17-county area would increase by $1,426,000 for a total of $9,650,000. This increase in economic activity would annually result in an increase of $850,000 for a total of $3,141,000 in employee income.

Relative to the no-action alternative, alternative A would provide an annual decrease of 13,000 visits, a decrease of $562,000 in visitor expenditures, an increase of $794,000 in NPS expenditures, an increase of $905,000 in total business activity, and an increase of $695,000 in employee income. Teton County, Wyoming, and Gallatin County, Montana, would benefit more than the rest of the 17-county greater Yellowstone area. It is possible that visitors denied access and services in the parks would still come to the area and seek recreational opportunities on adjacent national forests. This would offset the reduction in business activity due to decreased visitation by an unknown amount.

A short-term benefit would result from construction spending totaling $4,141,000. Assuming regional contractors did all this work, one-time total business activity within the 17-county region would increase by $5,742,000. This increase in economic activity would result in $1,550,000 in employee income in the region. Equipment purchases totaling $1,115,000 would have a minimal regional benefit because they would be purchased primarily outside the region.

Impacts on Concessioners

Closing the Snow Lodge and Mammoth Motor Inn would decrease income for TWRS and have a negative effect on year-round personnel. Decreasing the level of snow coach use would have some impact on concessioner income. However, neither action would have a significant effect on the concessioner's total year-round financial situation.

No other concession operations would be significantly affected.

ALTERNATIVE B: INCREASED USE LEVELS AND FACILITIES

Natural Resources

Thermal Areas. Thermal areas would not be affected. New construction would occur on previous building sites (Old Faithful) or at sites away from thermal areas (Canyon and Colter Bay).

Water Resources. Water resources would be affected by bridge construction for the Continental Divide snowmobile trail. Permanent bridges crossing Buffalo Fork and Pacific Creek would require construction in the floodway, with some temporary siltation. Army Corps

Table 13: Annual Economic Impacts of Alternative A: 1994 Distribution by Economic Sector in the 17-County Greater Yellowstone Area (expressed in 1989 dollars)

Economic Sector	Total Business Activity	Employee Income
Agriculture	$103,400	$6,933
Forest Products	6,697	2,233
Metals	940	352
Fossil Fuels	236,645	20,210
Aggregate Materials	1,528	470
Phosphate Rock	0	0
New Residential Structures	0	0
New Industrial Construction	228,773	65,213
Food Processing	152,985	19,505
Apparel	8,460	2,350
Sawmills and Millwork	9,753	2,233
General Manufacturing	157,568	38,540
Petroleum Refining	322,303	12,220
Railroads and Related Sectors	43,240	19,035
Other Transportation	35,133	7,285
Motor Freight Transport	64,625	26,908
Air Transportation	21,385	5,170
Pipe Lines, except Natural Gas	15,510	1,293
Communication	90,593	33,370
Utilities: Gas/Water	507,835	52,405
Recreational Related Wholesale Trade	68,150	28,082
Other Wholesale Trade	542,615	223,368
Recreational Related Retail Trade	43,593	20,328
Other Retail Trade	750,708	348,975
Fire	875,845	90,710
Hotels and Lodging Places	1,327,398	382,580
Personal Services	558,008	232,885
Business Services	182,243	80,135
Eating and Drinking Places	1,373,105	398,090
Auto Services	1,079,708	291,048
Recreation Services	37,835	12,455
Education	16,920	9,518
Non-Profit Organizations	39,715	19,740
Public Services	45,942	25,145
Other Federal Government	8,813	2,115
Local Government	0	118
State and Local Electric	13,630	1,645
Other State and Local Government	27,948	6,345
Government Industry	643,078	643,078
All Other Industry	0	0
Household Industry	8,460	8,460
Inventory Valuation Adjustment	0	0
Total	$9,650,393	$3,140,540

of Engineers 404 permits and Wyoming Department of Environmental Quality permits would be required. Water crossings of Pilgrim, Arizona, Lizard, Nickel, and Dime creeks would be on packed snow at stream grade, without culverts or modification of the streambed. At Arizona Creek a steep bank under the aerial power line would be modified to reduce the trail gradient. This cut and fill would require placement of about 10-30 cubic yards of fill into a floodplain forest wetland of willow, spruce, and cottonwood. A 404 permit would be required. Wetland ponds along the route would be unaffected because any winter travel would be on frozen surfaces without damage to substrate or vegetation, and there would be no need for excavation, fill, or drainage during the summer.

There would be no other construction effects on water resources from this alternative.

Lead concentrations in snow packed on roadways and potential impacts on runoff would increase with heavier snowmobile traffic. However, as more snowmobiles converted to lead-free gas, lead deposits would be expected to diminish.

Air Quality. Increased motor vehicle emissions would result from increased traffic. Monitoring would be needed to determine if localized air quality impacts would occur.

Soil and Vegetation. Construction of the Continental Divide snowmobile trail would require cutting shrubs, saplings, and some trees from the 14-foot width of the trail over most of the 30 miles of trail not following the highway right-of-way. The total acreage of shrubs and trees that would have to be removed for the snowmobile trail would be about 10-20 acres, spread out over the entire distance of the route. Actions would include cutting brush at ground level (but not excavating) from 2.6 miles of trail from Highway 26 over Schoolhouse Hill to Pacific Creek. A portion of this alignment would be on abandoned, grown-over two-track road between Highway 26 and the top of Schoolhouse Hill.

In the 24 miles of trail following aerial electric power lines between Pacific Creek and the head of Jackson Lake near Steamboat Mountain, brush and trees would be cleared back, where needed, to the specified width. At that point, instead of crossing the road to the west and continuing along the now abandoned power line right-of-way over Steamboat Mountain, the trail would stay east of the road, utilizing the recent burn and forest openings near the road to Flagg Ranch. Tree clearing would be required along the route because it would not follow an existing swath. The existing swath for the power line between the Jackson Lake junction and Steamboat Mountain is periodically cleared to maintain the corridor through lodgepole pine/subalpine fir forest; however, the Park Service policy and long-range objective is to eventually move the power line out of the backcountry into the highway corridor, where it would be buried underground. Additional vegetation clearing might be needed in some places to maintain the minimum trail width.

At two to four sites along this corridor, excavation and fill would be required to reduce the gradient of the trail. No imported fill would be required, since cuts would balance fills. The approximate volume of material moved would be 10-50 cubic yards, and the extent of the cut-and-fill disturbance would be 0.1-0.2 acre.

Disturbance from construction of new gas tanks, warming huts, ranger stations, and NPS employee housing would be the same as described for the plan. A total of 2-5 acres would be disturbed, less than 3 acres of which have not been previously disturbed.

Construction of lodging at Canyon, Colter Bay, and Signal Mountain Lodge would occur primarily for summer use, and the impacts have been previously analyzed in separate environmental assessments (NPS 1988; NPS 1989).

Wildlife. As visitor use and traffic increased, reliance on visitor education and voluntary cooperation might be inadequate to prevent some additional stress on wildlife. Also, providing lodging at Canyon might increase skiing and snowmobiling in nearby Hayden Valley, an important habitat area that has not received much winter use in the past. This area has important waterfowl habitat along the Yellowstone River and habitat for wintering bison that are less habituated (less tolerant) than bison elsewhere in Yellowstone. Some animals might be displaced from preferred habitat here and in other areas of the parks if too many people began approaching wildlife on foot; however, no long-term displacement from critical habitat or other major impacts would be anticipated from the levels of use forecast for this alternative.

Traffic on the Continental Divide snowmobile trail would affect some moose and possibly elk wintering in floodplains and upland conifer forests, possibly stressing the animals by temporarily displacing them from feeding areas and causing them to increase travel in deep snow. Trail grooming would create an easier travel route for these animals, and animal/human conflict would increase. These animals are not habituated to humans and would be more likely to move away from trails than animals observed in Yellowstone.

Continued or increased travel in the Potholes (when minimum snow depth requirements were met) would have no effect on wintering ungulates because they make only negligible winter use of the area. An occasional coyote might be disturbed by snowmobile traffic.

Increased skier traffic into the Oxbow area with no restrictions on use except voluntary cooperation might displace animals and result in less use of important riparian habitat.

Threatened and Endangered Species. Increased winter facilities and use levels might affect bald eagle distribution. Impacts would depend on specific areas and magnitude of increased use. Continued skier use in the Oxbow area of Grand Teton might result in disturbance to a pair of bald eagles nesting in the area. Occasional illegal travel into the closed Snake River bottoms east of the Potholes might disturb a pair of bald eagles that nest in that area. Displacement of eagles from their nests during incubation in March might result in chick mortality.

Increased visitor use and the distribution of use under this alternative might have some effect on grizzly bear survival rates in Yellowstone. Additional human use in bear habitat has the potential to affect grizzlies. Particular concerns are human food conditioning and human habituation, which can result in bears having to be destroyed, and physical displacement of bears from their critical habitat, which can result in higher mortality and lower fecundity rates. Opening accommodations at Canyon could have adverse effects on grizzlies if visitor use spread into the critical shoulder seasons. The management strategy for the species is to eliminate adverse human-induced impacts and conflicts. If these cannot be eliminated, mitigating measures and human use management restrictions must be imposed.

No other effects on threatened or endangered species would be expected.

Cultural Resources

Impacts on historic structures at Old Faithful would be similar to those described for the plan.

Visitor Use

Experience. Possible changes in the quality of the visitor experiences are difficult to assess, since this is a subjective factor dependent on individual visitors' past experiences and expectations. Under this alternative, visitation would increase with demand, and NPS-imposed constraints on use would be minimal. This would appear to allow visitors maximum freedom of choice and therefore enjoyment; however, depending on resulting visitor use levels and distribution, the quality of the visitor experience might be decreased for certain user groups. For example, increased snowmobile traffic and noise might diminish skiers' satisfaction with their experience. Skiers and wildlife viewers would be more likely to be adversely affected than snowmobilers, who seem more group-oriented and tolerant of noise and encounters with other parties.

The backcountry alignment of the Continental Divide snowmobile trail would result in a different snowmobiling experience from the plan, providing a more interesting trail route and an enhanced feeling of remoteness and adventure. The route through Grand Teton would require a higher skill level under this alternative than it would under the plan. The degree of risk associated with two-way snowmobile traffic and terrain features would be about the same as it would be under the plan. Under this alternative snowmobilers would have to contend with backcountry hazards but would not have to contend with adjacent automobile traffic.

Increased Yellowstone and Grand Teton lodging opportunities would provide more variety and a greater choice of places to stay and visit in the parks. Canyon Village would provide the remoteness that seems to be highly desired by visitors currently staying at the Snow Lodge.

Use Levels. This alternative would result in an estimated 151,200 annual visits, which would be the highest visitor use level of all the alternatives (table 14). Compared to no action, snowmobile use would increase by about 6,000 visits. This projection includes both the increase that would result from development of the Continental Divide trail and the increase that would result from the provision of new lodging, especially at Canyon and Colter Bay. Annual use of the Continental Divide snowmobile trail would be projected to be between 3,000 and 6,000 visits by 1995. The trail would be expected to receive higher use than under the plan because of its backcountry alignment. Most of the snowmobile use associated with the Continental Divide trail would be contained within Grand Teton. Only a relatively small percentage of trail users would likely travel from the Lander area through to West Yellowstone.

Skiing would also increase, in large part due to the availability of additional lodging inside the parks. An estimated 14,000 additional skiers per year would use the parks compared to use levels if no action was taken to support this use.

TABLE 14: FORECAST INCREASE IN VISITOR USE, ALTERNATIVE B

EXISTING (1989-90)	FORECAST W/ NO ACTION (1994-95)	FORECAST W/ ALTERNATIVE B (1994-95)
122,900	131,200	151,200

Noise. Background noise would increase with increased use of snowmobiles, snow coaches, and grooming machines on snow roads and the Continental Divide trail. This would have a cumulative effect with other noise sources such as the highways and Jackson Hole airport. Skiers and pedestrians on nearby trails and boardwalks would experience louder noise and shorter periods of silence.

Regional Economic Impacts

Under this alternative the total forecast winter visitation to the three-park area in 1994-95 would be 151,200 visits. Total annual visitor expenditures in the greater Yellowstone area would increase by $1,224,000, and annual NPS expenditures would increase by $1,353,000. Annual total business activity within the 17-county area would increase by $4,771,000 for a total of $12,959,000. This increase in economic activity would annually result in an increase of $2,052,000 for a total of $4,342,000 in employee income.

Relative to the no-action alternative, alternative B would provide an annual increase of 20,000 visits, $864,000 in visitor expenditures, $1,353,000 in NPS expenditures, $4,214,000 in total business activity, and $1,896,000 in employee income. Teton County, Wyoming, and Gallatin County, Montana, would benefit more than the rest of the 17-county greater Yellowstone area.

A short-term benefit would result from construction spending amounting to $18,967,000. Assuming regional contractors did all this work, one-time total business activity within the 17-county region would increase by $26,388,000. This would result in $7,121,000 in employee income in the region. Equipment purchases totaling $1,619,000 would have a minimal regional benefit because they would be purchased primarily outside the region.

Impacts on Concessioners

Development of lodging and food service at Old Faithful would have the same impacts as in the plan. The proposed developments at Colter Bay and Signal Mountain Lodge would be preceded by marketing and feasibility studies to determine the feasibility of each development. No other concession operations at Yellowstone would be significantly affected. At Grand Teton the gas station operation at Colter Bay would increase sales for the Grand Teton Lodge Company.

TABLE 15: ANNUAL ECONOMIC IMPACTS OF ALTERNATIVE B: 1994 DISTRIBUTION BY ECONOMIC SECTOR IN THE 17-COUNTY GREATER YELLOWSTONE AREA (EXPRESSED IN 1989 DOLLARS)

ECONOMIC SECTOR	TOTAL BUSINESS ACTIVITY	EMPLOYEE INCOME
Agriculture	$137,358	$9,165
Forest Products	8,930	2,938
Metals	1,293	470
Fossil Fuels	322,890	27,495
Aggregate Materials	1,998	588
Phosphate Rock	0	0
New Residential Structures	0	0
New Industrial Construction	303,033	86,363
Food Processing	203,275	25,968
Apparel	11,515	3,290
Sawmills and Millwork	12,808	3,055
General Manufacturing	209,620	51,348
Petroleum Refining	434,750	16,568
Railroads and Related Sectors	57,233	25,263
Other Transportation	46,883	9,635
Motor Freight Transport	85,658	35,603
Air Transportation	28,318	6,933
Pipe Lines, except Natural Gas	20,798	1,880
Communication	198,850	44,063
Utilities: Gas/Water	703,003	72,380
Recreational Related Wholesale Trade	88,713	36,543
Other Wholesale Trade	723,800	297,980
Recreational Related Retail Trade	58,162	27,025
Other Retail Trade	1002,863	466,240
Fire	1,184,870	122,788
Hotels and Lodging Places	1,698,463	489,622
Personal Services	774,795	323,360
Business Services	241,227	105,985
Eating and Drinking Places	1,773,663	514,298
Auto Services	1,390,143	374,825
Recreation Services	51,113	16,803
Education	22,913	12,925
Non-Profit Organizations	53,815	26,672
Public Services	61,218	33,488
Other Federal Government	11,985	2,820
Local Government	118	118
State and Local Electric	17,860	2,115
Other State and Local Government	37,248	8,460
Government Industry	1,045,633	1,045,633
All Other Industry	0	0
Household Industry	11,633	11,633
Inventory Valuation Adjustment	0	0
Total	$12,959,428	$4,342,213

ALTERNATIVE C: NO ACTION

Natural Resources

Thermal Areas. Thermal areas would not be affected.

Water Resources. There would be no effect on water resources, including surface waters, floodplains, and wetlands. Lead contamination of snowpack on roads would decrease as no-lead snowmobiles became more prevalent.

Air Quality. There would be no new effects on air quality. See "Area Description."

Soil and Vegetation. Maintenance of winter facilities, such as buildings and utilities, would continue to cause minor disturbance to soil and vegetation. There would be no major construction of winter use facilities under this alternative.

Wildlife. Existing patterns of wildlife use and interactions with visitors would continue. Wintering birds and mammals, such as waterfowl, elk, moose, and bison, that are habituated to people would continue to be observed and occasionally approached at close range by visitors. This might result in some stress to the animals. Hunted animals or those less habituated to people would continue to run or fly when approached by persons on foot, wasting vital energy reserves. However, no evidence exists of ungulate mortality or abandonment of habitat being caused by human recreational use of winter habitat. Ungulate populations in the area are generally as large as or larger than they were in 1970, when winter recreation began to rapidly increase.

In localized areas that are both high quality riparian habitat and attractive to skiers, such as the Oxbow area, wildlife might be displaced and habitat utilization might be reduced. However, plans now in effect call for temporary or seasonal closures to protect wildlife and other natural resources when conflicts become apparent. Such existing management would continue under the no-action alternative. Continued or increased travel in the Potholes (when minimum snow depth requirements were met) would have no effect on wintering ungulates because they make only negligible winter use of the area. An occasional coyote might be disturbed by snowmobile traffic.

Threatened and Endangered Species. There would be no substantial effects on threatened or endangered species. Skier use of the Oxbow area in Grand Teton might potentially disturb a pair of bald eagles nesting nearby, but this use could be restricted using existing management authorities. A pair of bald eagles that nest in the Snake River bottoms east of the Potholes might be disturbed by occasional illegal travel into the closed river bottoms area from the nearby Potholes.

Grizzly bears could be protected by existing authorities. As stated in the "Area Description," studies indicate that when grizzly bears emerge from their dens in late winter or early spring, they avoid humans using roads and developments even if preferred food such as winter-killed carrion is available in those areas. To mitigate impacts, existing park management programs provide for temporary closures of roads or facilities during the spring season when feeding grizzlies are present. This period is generally after closure of the Yellowstone snowmobile season, so the restrictions generally only apply to administrative activities.

No impacts on swans or lynx would be expected. Swan reproduction has been poor over the last decade or more; however, this problems is believed to be weather related. Lynx would not normally use habitat near road corridors.

Cultural Resources

Historic structures would not be affected.

Visitor Use

Experience. The current range of recreational opportunities would remain unchanged. No segment of the Continental Divide snowmobile trail would pass through the parks. People using the trail outside the parks would have to trailer their machines between the east side of Grand Teton and existing snow roads.

Use Levels. Forecast visitor use levels would not be affected. Approximately 131,200 people would be expected to visit the parks in winter during the 1994-95 season.

Noise. Existing noise would continue. See "Environmental Consequences, Plan" for a general discussion of noise impacts.

Regional Economic Impacts

Total annual visitor expenditures in the greater Yellowstone area would increase by $360,000. No increase in NPS expenditures was factored in for this alternative. Based solely on visitor expenditures and secondary expenditures, the total business activity within the 17-county region would be expected to increase by $556,000 for a total of $8,745,000 per year. This increase in economic activity would annually result in an increase of $156,000 for a total of $2,446,000 in employee income.

Impacts on Concessioners

No additional sales would be generated by this alternative, nor would any additional development costs be assigned to the concessioners.

TABLE 16: ANNUAL ECONOMIC IMPACTS OF ALTERNATIVE C: 1994 DISTRIBUTION BY ECONOMIC SECTOR IN THE 17-COUNTY GREATER YELLOWSTONE AREA (EXPRESSED IN 1989 DOLLARS)

ECONOMIC SECTOR	TOTAL BUSINESS ACTIVITY	EMPLOYEE COMPENSATION INCOME
Agriculture	$97,995	$6,580
Forest Products	6,345	1,998
Metals	940	353
Fossil Fuels	197,518	16,803
Aggregate Materials	1410	470
Phosphate Rock	0	0
New Residential Structures	0	0
New Industrial Construction	220,548	62,863
Food Processing	145,348	18,565
Apparel	7,403	2,115
Sawmills and Millwork	9,518	2,233
General Manufacturing	149,108	36,543
Petroleum Refining	285,760	10,810
Railroads and Related Sectors	41,713	18,448
Other Transportation	32,783	6,698
Motor Freight Transport	61,805	25,733
Air Transportation	20,210	4,935
Pipe Lines, except Natural Gas	13,748	1,175
Communication	87,890	32,430
Utilities: gas/water	393,038	40,538
Recreational Related Wholesale Trade	71,205	29,375
Other Wholesale Trade	507,248	208,798
Recreational Related Retail Trade	40,890	19,035
Other Retail Trade	696,893	323,948
Fire	765,865	79,313
Hotels and Lodging Places	1,471,453	424,175
Personal Services	424,175	177,073
Business Services	175,898	77,315
Eating and Drinking Places	1,469,573	426,055
Auto Services	1,169,948	315,488
Recreation Services	33,018	10,810
Education	14,335	8,108
Non-Profit Organizations	34,663	17,273
Public Services	42,888	23,38
Other Federal Government	7,638	1,763
Local Government	118	118
State and Local Electric	13,278	1,528
Other State and Local Government	25,733	5,875
Government Industry	0	0
All Other Industry	0	0
Household Industry	7,285	7,285
Inventory Valuation Adjustment	0	0
Total	$8,745,055	$2,445,880

Table 17: Summary of Environmental Consequences, Plan and Alternatives

	Effect			
Value	Plan	Alternative A: Reduced Use	Alternative B: Increased Use	Alternative C: No Action
Thermal areas	No effect	No effect	No effect	No effect
Water resources	Minor temporary siltation from seasonal bridge placement	No effect	Temporary siltation from bridge construction, floodplain fill at one bridge	No effect
Air quality	No change	No change	Some increase in vehicle emissions	No change
Soil and vegetation	2-5 acres disturbed for new structures; about 0.5 acre of roadside shrubs and immature trees removed for Continental Divide trail	No new disturbance	2-5 acres disturbed for new structures; 10-20 acres of trees and shrubs removed for Continental Divide trail	No new disturbance
Wildlife	No substantial effect; increased skier restrictions would reduce stress on individual animals	No effect; least potential for disturbance of wildlife of all alternatives	Additional stress on individual animals; probably no long-term displacement from habitat	No new disturbance
Endangered species	No effect	No effect	Potential for disruption of bald eagle nesting and disturbance of grizzly bears	No effect
Cultural resources	No effect	No effect	No effect	No effect
Visitor experience	Opportunities for long-distance snowmobiling increased; opportunities for off-road snowmobiling eliminated; some skiers inconvenienced by additional restrictions	Increased quiet and solitude; interior overnight lodging opportunities eliminated and most skiers restricted to day trips; snowmobilers inconvenienced by quota system and elimination of warming huts	Opportunities for long-distance snowmobiling greatly increased; reduced quiet and solitude; potential for increased conflicts; more lodging opportunities	No change
Use levels	134,200 total annual visits in 1994-95	118,200 total annual visits in 1994-95	151,200 total annual visits in 1994-95	131,200 total annual visits in 1994-95
Noise	Generally no change, increase in snowmobile noise south of Jenny Lake	Noise reduced	Noise increased in level and distribution	No change
Economic impacts	Increase in total annual business activity of $3.3 million and employee income of $1.5 million	Increase in total annual business activity of $1.5 million and employee income of $0.9 million	Increase in total annual business activity of $4.8 million and employee income of $2.1 million	Increase in total annual business activity of $0.6 million and employee income of $0.2 million
Cumulative effects	No effect	No effect	No effect	No effect

CONSULTATION AND COORDINATION

CONSULTATION AND COORDINATION IN THE PREPARATION OF THE DRAFT PLAN/ENVIRONMENTAL ASSESSMENT

During the preparation of this document the National Park Service consulted with the following agencies:

Advisory Council on Historic Preservation
Greater Yellowstone Coordinating Committee
Montana Historic Preservation Officer
Wyoming Historic Preservation Officer
Wyoming Recreation Commission
U.S. Fish and Wildlife Service
U.S. Forest Service

Pursuant to the Endangered Species Act, the Park Service initiated informal consultation with the U.S. Fish and Wildlife Service in March 1989. As part of this consultation the Park Service identified the problem of using the cumulative effects model (CEM) to analyze impacts on the grizzly bear, because the 1988 fires had invalidated the vegetation component of the model. The Fish and Wildlife Service concurred with the problem of using the CEM until the park can be remapped and suggested that the Park Service use the available data to analyze impacts on the grizzly bear.

The Park Service consulted with the Wyoming and Montana historic preservation officers and the Advisory Council on Historic Preservation in the preparation of this plan pursuant to a programmatic memorandum of agreement. These agencies were invited to participate during the project initiation stage and have received copies of all documents published for the plan. Prior to undertaking any project affecting historic structures eligible for the National Register of Historic Places, the plans and drawings will be reviewed by the NPS regional historical architect to ensure compliance with all requirements, including the secretary of the interior's standards for rehabilitation.

About 1,500 copies of a newsletter listing planning issues were distributed to numerous agencies, organizations, and individuals for public review and comment in March 1989. Open house meetings were held in six communities in the greater Yellowstone area in April and May. About 250 written responses were received during the public input period. The responses were used to help develop alternatives for planning issues.

About 1,600 copies of a newsletter listing alternatives to address the issues were distributed for public review in September 1989. About 675 written responses came in during the public review period. The responses were used to help develop a draft plan for the project.

This project included extensive coordination between the National Park Service and U.S. Forest Service. NPS staff made presentations to the Greater Yellowstone Coordinating Committee, held open house meetings in the greater Yellowstone area which local Forest Service staff attended, sent copies of the scoping and alternatives newsletters to all national forests in the region, and gathered data from the Forest Service on winter recreational opportunities available outside the parks. More extensive coordination occurred on key issues identified during the scoping phase that crossed jurisdictional boundaries. These included the Continental Divide snowmobile trail and the staging areas outside the park entrances. The draft WUP/EA was sent to all national forests in the region and comments were received and addressed in this final plan.

This project also included extensive coordination with the Wyoming Recreation Commission (WRC) and other state agencies. WRC staff served as consultants to the planning team, participated in on-site field investigations of the Continental Divide snowmobile trail, and attended meetings in Cheyenne with Park Service personnel to discuss the project. NPS staff made a presentation to WRC and other state agency staff on the draft WUP/EA in Cheyenne. Copies of the scoping newsletter, alternatives newsletter, and draft WUP/EA were sent to Wyoming Recreation Commission and other state agencies. Comments were submitted by these agencies at each phase and were addressed throughout the project by the National Park Service.

REVIEW OF THE DRAFT PLAN/ENVIRONMENTAL ASSESSMENT

In June 1990 the National Park Service distributed the *Draft Winter Use Plan/ Environmental Assessment* for Yellowstone National Park, John D. Rockefeller, Jr., Memorial Parkway, and Grand Teton National Park. The draft plan/assessment presented a proposal and three alternatives for resolving the issues being analyzed for the plan, and it included the analysis of their impacts. A cover memorandum signed by the two park superintendents requested public review and comments. An estimated 1,800 copies were distributed using the project mailing list and in response to requests for copies received at the Rocky Mountain Regional Office, the Denver Service Center, and the parks. A press release was issued on June 5, and newspaper articles and interest group notices generated additional interest.

The draft plan/assessment was sent to the U.S Fish And Wildlife Service for informal consultation under Section 7 of the Endangered Species Act. In a July 3 response, the Fish and Wildlife Service State Supervisor in Cheyenne concurred in the NPS determination that the plan is not likely to adversely affect endangered and threatened species in the area.

The draft plan/assessment was sent to the Wyoming and Montana historic preservation officers and the Advisory Council on Historic Preservation. The Wyoming historic preservation officer responded on August 14 and had no objections concerning elements of the proposed plan or the adequacy of analysis. In a June 20 response, the Montana historic preservation officer also had no major comments or objections. The Advisory Council did not respond during the public review period. (Note that the Council did correspond at earlier stages in the planning process.)

The public review period closed on August 10. To allow time for mail processing, all comments received at the parks by August 17 were included in the analysis. Comments received after that date will be retained in the project file until after the plan is completed. About 450 responses were received by August 17 – 70 from agencies and organizations and 380 from individuals.

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About 80 identical or very similar letters were generated by flyers sent out by interested organizations. These letters opposed the roadway proposal for the Continental Divide snowmobile trail; supported trailering snowmobiles through Grand Teton; requested an environmental analysis for the entire 370-mile trail; supported closing the Potholes snowmobile area; supported the visitor use management process; requested a further definition of sensitive wildlife areas; supported the proposal to limit overnight accommodations to existing facilities; supported the proposal to not provide snow coach service to the east entrance of Yellowstone; and requested additional environmental analysis on the Snow Lodge, employee housing, maintenance areas, warming huts, and other structural improvements.

About 20 form letters were received showing identical support for the alternative B proposal for an off-road route for the Continental Divide snowmobile trail. A petition signed by nine people also came in supporting alternative B for the Continental Divide trail. Other respondents initially supporting alternative B for the Continental Divide trail later wrote saying they had been confused by the document format and changed their support to the proposed roadway trail.

Of the remaining letters, 21 percent supported the proposal, 44 percent supported alternative A (reduce use), 35 percent supported alternative B (increased use), and none supported alternative C (no action). These percentages do not include the 100 letters summarized above.

Several commenters specifically supported the proposal to establish a visitor use management process; several commenters supported using the roadway through Grand Teton for the Continental Divide snowmobile trail; numerous persons supported closing the Potholes to off-road snowmachine use, and several supported providing snow coach use at approximately existing levels. Conversely, several commenters supported keeping the Potholes open, although only about half the number that supported closing the area. Several commenters supported increased snow coach service, including service from the east gate of Yellowstone. Several commenters also supported increased winter lodging capacity, including new lodging at Canyon Village.

The substantive comments and the National Park Service responses are included in appendix D.

APPENDIX A: VISITOR USE STATISTICS

TABLE A-1: YELLOWSTONE WINTER VISITATION
WINTER SEASON (DECEMBER 1 – MARCH 31)

WINTER SEASON	NORTH (AUTO)	WEST (SNOW)	SOUTH (SNOW)	EAST (SNOW)	TOTAL**	ANNUAL INCREASE		OVERN. % ***
						AMT	%	
1982-83	23,226	32,569	10,795	2,017	68,607			24.5%
1983-84	23,862	34,495	9,690	1,507	69,653	1,046	1.5%	27.7
1984-85	26,167	36,097	9,535	2,706	74,505	4,852	7.0	34.2
1985-86	28,599*	37,261	10,901	2,548	79,309	4,804	6.4	43.3
1986-87	26,144	43,338	12,951	3,737	86,170	6,861	8.7	37.6
1987-88	27,138	48,841	16,254	3,273	95,506	9,336	10.8	35.6
1988-89	28,079	44,312	17,029	3,194	92,614	-2,892	-3.0	29.4
1989-90	23,622	50,724	20,322	3,581	98,249	5,635	6.1	31.7

Note: (Auto) denotes entrance by automobile, RV, and bus; (snow) denotes entrance by snowmobile, snow coach, or skis

*1985-86 north entrance total adjusted to correct RV count.

**Vehicles reentering the park through the northeast entrance are not included in the park total.

***Percent of total visitors staying at the Mammoth Motor Inn or the Old Faithful Snow Lodge.

TABLE A-2: YELLOWSTONE WINTER ENTRANCE BY SNOWMOBILE AND SNOW COACH*

WINTER SEASONS	NORTH** ENTRANCE		WEST ENTRANCE		SOUTH ENTRANCE		EAST ENTRANCE		TOTAL SNOWMO
	SNOWMO	COACH	SNOWMO	COACH	SNOWMO	COACH	SNOWMO	COACH	
1982-83	1,136	777	26,842	5,615	8,513	1,733	1,733	0	38,248
1983-84	1,504	1,047	29,089	5,051	7,581	1,940	1,365	39	38,035
1984-85	1,651	2,314	31,183	4,860	7,031	2,267	2,331	30	40,545
1985-86	2,041	3,455	31,950	5,275	8,960	1,771	2,074	20	42,984
1986-87	687	3,072	37,866	5,424	10,764	1,919	3,407	0	52,037
1987-88	644	3,162	43,021	5,692	14,027	2,159	2,921	30	59,969
1988-89	461	3,264	38,441	5,780	14,617	2,151	2,799	10	55,857
1989-90	826	2,424	44,128	6,572	17,816	2,338	3,168	0	65,112

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*Snow coach figures include TWRS trips departing from Mammoth Terrace to Old Faithful, Canyon day trips, and snow coach use by other companies.

**Snowmobiles trailered to Mammoth Terrace.

TABLE A-3: TW RECREATION SERVICES SNOW COACH USE

WINTER SEASON	TO OLD FAITHFUL FROM NORTH	WEST	SOUTH	EAST	TOTAL PASS.	CANYON LOOP FROM MAMMOTH	OLD FAITH.	W. YELL.
1982-83	597	5,820	1,763	0	8,180	180	690	0
1983-84	915	4,609	1,907	30	7,461	132	635	0
1984-85	1,824	4,199	2,128	10	8,161	490	806	0
1985-86	2,725	5,084	1,928	0	9,737	730	665	0
1986-87	2,455	4,567	1,923	0	8,945	617	868	0
1987-88	2,605	4,729	2,192	20	9,546	557	1,042	0
1988-89	3,022	4,108	2,130	10	9,180	242	442	0
1989-90	2,365	4,451	2,332	0	9,148	426	626	262

TABLE A-4: YELLOWSTONE WINTER VISITATION BY ENTRANCE GATE, DECEMBER 1 – MARCH 31

WINTER SEASON	NORTH (AUTO)	WEST (SNOW)	SOUTH (SNOW)	EAST (SNOW)	TOTAL	SNOW ONLY TOTAL	INCR/ DECR*
1968-69	10,251	6,822	264	419	17,756	10,335	-
1969-70	5,315	13,340	234	2,268	21,157	17,842	7,507
1970-71	4,633	15,562	1,851	739	22,785	19,635	1,793
1971-72	3,988	22,160	2,501	598	29,248	26,188	6,553
1972-73	6,062	29,626	3,534	1,438	40,660	36,551	10,363
1973-74	24,138	31,873	3,228	896	60,135	42,525	5,974
1974-75	31,383	34,297	3,385	623	69,688	40,169	-2,356
1975-76	23,745	35,684	4,355	767	64,551	41,810	1,641
1976-77	23,093	26,339	6,270	1,384	57,086	35,105	-6,705
1977-78	50,662**	35,666	7,063	1,752	95,143	46,403	11,298
1978-79	51,560**	32,713	8,489	1,843	94,605	43,138	-3,265
1979-80	60,335**	37,007	12,683	2,305	102,344	43,685	547
1980-81	41,428**	32,196	11,220	1,503	85,818	46,266	2,581
1981-82	57,908**	33,662	8,514	2,402	99,573	46,304	38
1982-83	23,226	32,569	10,795	2,017	68,607	47,294	990
1983-84	23,862	34,594	9,690	1,507	69,653	48,342	1,048
1984-85	26,167	36,097	9,535	2,706	74,505	52,303	3,961
1985-86	28,599	37,261	10,901	2,548	79,309	56,206	3,903
1986-87	26,144	43,338	12,951	3,737	86,170	63,785	7,579
1987-88	27,138	48,841	16,254	3,273	95,506	72,174	8,389
1988-89	28,079	44,312	17,029	3,194	92,614	68,260	-3,914
1989-90	23,622	50,724	20,322	3,581	98,249	78,950	10,690

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*Increase or decrease in visitation by snowmobile, snow coach, or skies from previous year.

**Different passenger multiplier used.

TABLE A-5: WINTER SEASON (DECEMBER 1 – MARCH 31) GRAND TETON NATIONAL PARK – ROCKEFELLER PARKWAY WINTER VISITATION

WINTER SEASON	GRAND TETON VISITORS	ROCKEFELLER VISITORS	PERCENT OF GRAND TETON*
1982-83	43,067	12,954	30
1983-84	34,367	11,628	34
1984-85	35,712	11,442	32
1985-86	43,372	13,081	30
1986-87	44,668	15,541	35
1987-88	44,845	19,504	43
1988-89	44,991	20,435	45
1989-90	44,947	24,386	54

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*Percent of Grand Teton visitors entering the parkway.

TABLE A-6: WINTER VISITOR USE – GRAND TETON NATIONAL PARK*

	NORTH DISTRICT/JACKSON LAKE			POTHOLES*
		SNOWMOBILE USERS		
WINTER SEASON	SNOWPLANE USERS	PRIVATE USERS	GUIDED TOURS	SNOWMOBILE USERS
1982-83	1,101	1,267	58	874
1983-84	1,050	1,098	739	1,071
1984-85	1,314	1,055	0	816
1985-86	1,328	735	0	440
1986-87	1,498	789	76	480
1987-88	758	572	0	440
1988-89	1,698	817	0	290
1989-90	1,463	1,421	81	342

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*Includes Teton and Jenny Lake snow roads.

TABLE A-7: WINTER VISITOR USE – ROCKEFELLER PARKWAY

WINTER SEASON	SNOWMOBILE USERS			SNOW COACH USERS INTO YELLOWSTONE
	PRIVATE USERS	ON GUIDED TOURS	FLAGG RENTALS	
1982-83	2,538	3,184	2,791	1,733
1983-84	2,734	2,762	2,084	1,940
1984-85	1,890	2,737	2,404	2,267
1985-86	2,739	3,516	2,705	1,771
1986-87	1,411	6,713	2,640	1,919
1987-88	2,017	8,413	3,597	2,159
1988-89	3,885	7,878	2,854	2,151
1989-90	1,792	11,456	4,568	2,338

APPENDIX B: DEVELOPMENT COST ESTIMATES

The following are gross class C cost estimates for the plan and alternatives. Advance and project planning (design) costs are listed at the bottom. Estimates are for comparing alternatives and are not intended to be a detailed breakdown of all development needs for the parks. Cost estimates for new housing and general redevelopment at sites such as Old Faithful and Flagg Ranch are covered in separate planning documents. Detailed estimates will be developed in subsequent programming and design documents.

PROPOSED DEVELOPMENT	COST
Continental Divide Snowmobile Trail	
Use road corridor through Grand Teton and Rockefeller Parkway to Flagg Ranch; clear trees in roadside[1]	$ 121,000
Install temporary, seasonal bridge for Pacific Creek	26,000
Provide signs	26,000
Construct equipment storage buildings at Moran and Colter Bay	105,000
Winterize quarters at Colter Bay	118,000
Construct new quarters	1,048,000
Rehabilitate and relocate structures for interim quarters	200,000
Install administrative fuel facilities at Moran and Flagg Ranch	105,000
Construct maintenance/storage garage at Flagg Ranch	262,000
Provide Temporary, seasonal entrance station at Moran	94,000
Lodging/Restaurants	
Replace (or rehabilitate) Snow Lodge at Old Faithful[2]	9,570,000
Gas: Replace tanks at	
Old Faithful	197,000
Canyon	131,000
Warming Huts	
Construct new hut at Madison	325,000
Provide seasonal hut at Norris	60,000
Interpretive Facilities	
Provide winterized facility at Canyon	524,000
Ranger Stations	
Provide winterized stations at	
Grant Village	262,000
Old Faithful	262,000
Canyon (see Interpretive Facilities)	
Norris	262,000
Other	
Provide maintenance/storage buildings at three locations	2,163,000
Construct employee recreation facilities at seven locations	1,192,000
Gross Construction Costs	$17,053,000
Planning Costs	3,254,000
Total Project Costs	$20,307,000

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[1] $121,000 is the construction cost of establishing the Continental Divide trail as proposed along the roadway. Related development costs for facilities needed to support the trail are itemized separately under the trail heading. Appendix C lists staffing and equipment needs for all winter operations, including the operation of the Continental Divide snowmobile trail.

[2] $9,570,000 is the estimated cost of replacement. The cost would be less if the facility was rehabilitated.

ALTERNATIVE A DEVELOPMENT	**COST**
Ranger Stations	
Same as the plan	$ 786,000
Other	
Same as the plan	3,355,000
Gross Construction Costs	$ 27,702,000
Planning Costs	790,000
Total Project Costs	$ 4,931,000

ALTERNATIVE B DEVELOPMENT	**COST**
Continental Divide Snowmobile trail	
Develop 30 miles of off-road trail through Grand Teton and Rockefeller Parkway to Flagg Ranch; 100' bridge (12'wide)	1,799,000
Install signs	26,000
Construct equipment storage buildings at Moran and Colter Bay	105,000
Winterize quarters at Colter Bay	118,000
Construct new quarters	1,048,000
Rehabilitate and relocate structures for interim quarters	200,000
Install administrative fuel facilities at Moran and Flagg Ranch	105,000
Construct maintenance/storage garage at Flagg Ranch	262,000
Provide temporary/seasonal entrance station at Moran	94,000
Lodging/Restaurants	
Same as the plan	9,570,000
Gas	
Same as the plan	328,000
Warming Huts	
Same as the plan	385,000
Interpretive Facilities	
Provide winterized facility at Canyon	524,000
Winterize Colter Bay visitor center	262,000
Ranger Stations	
Same as the plan	786,000
Other	
Same as the plan	3,355,000
Gross Construction Costs	$24,688,000
Planning Costs	3,620,000
Total Project Costs	$22,587,000

APPENDIX C: ADDITIONAL WINTER STAFFING AND EQUIPMENT NEEDS

	Plan		Alternative A		Alternative B	
Yellowstone Staffing Needs	No.	Cost[1]	No.	Cost	No.	Cost
Resource Management & Visitor Protection:						
Ranger (GS-9)	3	$ 30,780	3	$ 30,780	7	$ 71,820
Ranger (GS-5)	9	60,930	9	60,930	12	81,240
Ranger (GS-4)	1	6,050	1	6,050	2	12,100
Planner/VUM Coordinator (GS-11)[2]	1	43,000	0	0	0	0
Maintenance:						
Sewage Plant Operator (WG-10)	1	$ 10,620	1	10,620	1	10,620
Equipment Operator (WG-10)	3	31,860	3	31,860	4	31,860
Water Plant Operator (WG-10)	0	0	0	0	1	10,620
Heavy Duty Mechanic (WG-10)	1	10,620	1	10,620	1	10,620
Motor Vehicle Operator (WG-7)	2	18,780	2	18,780	2	18,780
Maintenance Worker (WG-5)	7	60,270	7	60,270	8	68,880
Laborer (WG-3)	11	85,910	11	85,910	14	109,340
Trades Person (WG-7)	4	37,560	4	37,560	4	37,560
Mechanic (WG-10)	1	10,620	1	10,620	1	10,620
Mobile Equipment Server (WG-5)	3	25,830	3	25,830	3	25,830
Interpretation:						
Ranger (GS-7)	0	0	0	0	1	8,390
Ranger (GS-5)	6	40,620	6	40,620	10	67,700
Concessions:						
Examiner (GS-7)	1	8,390	0	0	1	8,390
Research:						
Research Biologist (GS-11)[2]	1	43,000	0	0	0	0
Biological Technician (GS-5)[2]	1	6,670	0	0	0	0
Biological Aide (GS-5)[2]	1	6,050	0	0	0	0
Subtotal	55	$537,600	51	$438,900	71	$576,100
Supplies and Utilities (30%)		161,300		131,700		172,800
Equip. Maint. and Amortization (20% of Equipment Cost, Below)		223,000		223,000		262,420
Total Additional Annual Cost		**$921,900**		**$793,600**		**$1,011,300**
Yellowstone Equipment Needs						
Transportation:						
Snowmobiles (@$4,200)	40	$168,000	40	$ 168,000	50	$ 210,000
Fold-a-Sleds (@$200)	10	2,000	10	2,000	13	2,600
Helmets (@$300)	60	18,000	60	18,000	70	21 000
Snowmobile suits (@$150)	60	9,000	60	9,000	70	10,500
Emergency:						
Oversnow ambulances (@$50,000)	2	100,000	2	100,000	3	150,000
Search/rescue caches (@$5,000)	10	50,000	10	50,000	10	50,000
Oversnow fire trucks (@$50,000)	4	200,000	4	200,000	4	200,000
Full-size water trailers (@$12,000)	4	48,000	4	48,000	4	48,000
Sled-size water trailers (@$5,000)	2	10,000	2	10,000	2	10,000
Maintenance:						
75-cu-yd garbage compactors (@$100,000)	2	200,000	2	200,000	3	300,000
Snow road groomers (@$125,000)	2	250,000	2	250,000	2	250,000
Snowblowers (@$20,000)	3	60,000	3	60,000	3	60,000
Total New Equipment Cost		**$1,115,000**		**$1,115,000**		**$1,312,100**

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[1] These needs are to bring Yellowstone staffing and equipment up to levels desired for existing conditions. They are in addition to current funding. With the exception of the staffing for the visitor use management process, the proposed staffing and equipment are also recommended for operations under winter use levels anticipated in alternative A. Contract research will also be needed at an annual cost of about $80,000. Existing funding being diverted from the summer programs is about $1,106,000 per year.

[2] Staff needed for the visitor use management process.

	Plan		Alternative A		Alternative B	
Grand Teton Staffing Needs	No.	Cost[1]	No.	Cost	No.	Cost
Resource Management & Visitor Protection:						
Ranger (GS-7)	1	$ 8,390	0	$ 0	2	$ 16,780
Ranger (GS-5)	3	20,310	0	0	4	27,080
Ranger (GS-3)	4	21,560	0	0	8	43,120
Maintenance:						
Equipment Operator (WG-10)	2	21,240	0	0	4	42,480
Heavy Duty Mechanic (WG-10)	0	0	0	0	1	10,620
Laborer (WG-6)	1	7,210	0	0	1	7,210
Laborer (WG-4)	1	6,670	0	0	1	6,670
Interpretation:						
Ranger (GS-5)	4	27,800	0	0	6	40,620
Concessions:						
Examiner (GS-6)	1	7,550	0	0	1	7,550
Research:						
Planner/VUM Coordinator (GS-11)[2]	1	21,500	0	0	0	0
Bio Tech (GS-5)	1	6,770	0	0	2	13,540
Subtotal	18	$149,050	0	$ 0	30	$215,700
Supplies and Utilities (30%)		44,700		0		64,700
Equip. Maint. and Amortization (20% of Equipment Cost, Below)		56,200		0		61,400
Total Additional Annual Cost		$249,950		$ 0		$341,800
Grand Teton Equipment Needs						
Transportation:						
Snowmobiles (@$4,200)	3	$ 12,600	0	$ 0	8	$ 33,600
Fold-a-Sleds (@$200)	3	600	0	0	6	1,200
Trailers (@$1,200)	2	2,400	0	0	4	4,800
Helmets (@$300)	10	3,000	0	0	14	4,200
Snowmobile suits (@$150)	10	1,500	0	0	14	2,100
4X4 vehicles (@$15,000)	3	45,000	0	0	3	45,000
Maintenance:						
Snow road groomers (@$72,000)	3	216,000	0	0	3	216,000
Total New Equipment Cost		$281,100		$ 0		$306,900

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[1] These needs are primarily to cover additional operations costs created by the Continental Divide snowmobile trail. The existing staffing and equipment would accommodate the needs for alternative A. Contract research will also be needed at an annual cost of about $20,000.

[2] Staff needed for the visitor use management process. It is assumed that the planner would spend about half time on the VUM and half time on other park planning issues.

APPENDIX D: SUBSTANTIVE COMMENTS AND NATIONAL PARK SERVICE RESPONSES

Following are the substantive comments on the *Draft Winter Use Plan/Environmental Assessment* (draft WUP/EA) and the National Park Service response. The comments are organized under the headings used in the draft document. Similar comments have been consolidated for this analysis.

AREA DESCRIPTION

Comment: The survey reported on pages 15-17 of the draft WUP/EA found that three-fourths of the respondents snowmobiled, but that snowmobiles were identified most often as the worst part of a visit. This raises serious questions about the integrity and sampling process of the survey. The statement that snowmobilers prefer short routes is in error.

Response: The statement "snowmobiles were identified most often as the worst part of the visit" accurately reflects the findings of the survey. Fifteen percent of all groups of visitors to the three-park area singled out snowmobiles as the least-liked part of their visit. Most of those complaints came from visitor groups who did not snowmobile. However, 33 percent of the complaints came from snowmobile groups who perceived negative aspects of snowmobiling. Snowmobiling was identified as a favorite part of the visit by many other survey respondents. The statement about short routes ("Snowmobilers were interested in more short snowmobile routes") accurately reflects the findings of the survey. Of the snowmobile groups, 45 percent expressed a need for more short routes, while 55 percent thought there were either already enough or too many such trails. In comparison, fewer than 30 percent of the snowmobile groups were interested in more longer or regional trails.

Comment: The forecasts for winter visitor use are too low, considering past increases in use, resulting in a plan that does not address environmental concerns. The forecasts do not consider aggressive marketing efforts by businesses and communities outside the park. The assumption of visitation leveling off should be questioned.

Response: Forecasting visitation and trends is not an exact science. The forecasts accurately reflect the best professional judgment of the NPS estimators, based on current data and past experience at these parks and elsewhere in the national park system. The low and high growth forecasts of 0 percent and 14 percent, shown in table 2, are based on two different assumptions about where the visitation growth curve will level off. The average of these high and low forecasts would be a 7 percent growth rate, which is the forecast used in the analysis. Aggressive marketing cannot be predicted with confidence. Any additional use generated by aggressive marketing campaigns would be monitored and managed to protect park values from degradation (see "Use Levels/Capacities").

Comment: The analysis of the regional winter economy is incomplete.

Response: We have included additional analysis of the regional economy in the "Area Description" and "Environmental Consequences" sections of the document (see p. 21-24, 68).

Comment: The EA should show the number of snowmobiles available for rent in the park and the control the park has over such rentals.

Response: We have provided the additional information on snowmobile rentals in the document (see p. 25).

Comment: There is no indication of how the park functions for visitors before and after the winter season. The document does not address how the needs of winter visitors differ from those of summer visitors.

Response: The draft WUP/EA considered winter visitors' special needs as identified through the winter use survey, summarized on pages 15-17 of that document. The plan is intended to address winter use, not summer use or "shoulder" season use.

Comment: The explanation of why elk populations have increased since 1968 is very misleading. The implication is that winter use has not affected elk populations because both have increased concurrently.

Response: Elk numbers on the northern range have increased concurrently with increasing automobile and cross-country skiing traffic, and elk populations elsewhere in Yellowstone and Grand Teton are generally stable at numbers comparable to pre-1970 levels. The document has been revised to clarify that this does not mean that winter use has had no effect on elk, just that other factors appear to have far greater impacts on population levels (see p. 11).

Comment: There is little discussion of how visitors get to the parks and the demands they place on highways, snowplowing, and services.

Response: We have included additional discussion of the demands placed on facilities and services outside the parks (see p. 30). The growth in winter use has placed demands on facilities, equipment, and staffs of adjacent national forests and communities as well as the parks. The intent of this plan is to cover only Yellowstone, Grand Teton, and the Rockefeller Parkway. The potential for unforeseen additional area impacts will be addressed as part of the ongoing planning for adjacent national forests and communities.

WINTER USE PLAN

Visitor Experience

Comment: The zoning scheme described is different from the general management zoning designed for resource protection as depicted in park master plans. This distinction should be made.

Response: The zoning scheme is a simplified version of the general management zoning for the parks. The distinction is further clarified in the final plan (see p. 32).

Comment: The natural zone could enable expansion of grooming for cross-country ski trails.

Response: The plan limits machine grooming to roads used by motor vehicles in the summer. The final document includes further clarification of the limited potential for additional grooming in the natural zone (see p. 33).

Comment: The inconsistency of including the Snake River bottomlands (which are closed to entry) in the natural zone (which is open to entry) should be corrected.

Response: The Snake River bottomlands are included in the natural zone because the natural zone is defined as areas outside developed areas and outside the recommended wilderness identified through the wilderness studies for Grand Teton and Yellowstone. As discussed under "Wildlife Effects," sensitive lands may be closed to protect species using an area. The text has been revised to clarify that further restrictions to protect wildlife may occur in any zone (see p. 33).

Use Levels/Capacities

Comment: The winter use plan should accommodate only that level of use that best protects park resources.

Response: The act establishing the National Park Service directs the agency to provide for the enjoyment of park resources in a manner that leaves them unimpaired for future generations. This is the basic cornerstone of the visitor use management process – that use will be allowed where and at such levels at which it does not create unacceptable impacts on park resources or the visitor experience. The proposals in the winter use plan are based on this management concept.

Comment: The visitor use management process should include an implementation schedule and should commence as soon as possible; funding should be increased for VUM. It should address existing and projected use levels, not just levels beyond the projections.

Response: A basic premise of the plan is that, based on winter use research in the parks and elsewhere, and judging from over 20 years of winter use management experience, existing use levels with modest projected increases will not have an unacceptable adverse impact on park resources. Therefore, future increases beyond the forecasts would be the primary concern of the VUM process. However, the process also will address existing and projected use levels if specific problems are identified and as funding permits. The plan has been revised to state that the visitor use management process will be initiated in Grand Teton concurrently with the operation of the Continental Divide snowmobile trail (see p. 34, 45).

Comment: The visitor use management process must start from a zero base (no visitation) and fairly analyze the management direction that the park must take.

Response: A comprehensive data base for a period predating the winter use era does not exist. However, a comparison of wildlife counts from years before and after the development of the winter use program shows no declines in numbers associated with increases in winter use. As stated above, a no-use alternative is inconsistent with the legislation establishing the National Park Service. The document analyzed a reasonable range of alternatives, including "no action." No action is defined as continuing the status quo. This does not mean discontinuing present activity; rather, it assumes that the National Park Service would respond to future needs and problems without major actions or changes in course.

Comment: The document does not indicate at what levels unacceptable impacts would occur.

Response: Measures to avoid unacceptable impacts on park resources already exist, and these and other measures will continue to be used as needed to keep impacts within acceptable limits. The future higher levels of use at which impacts could not be kept within acceptable levels have not yet been determined. They will be identified through the visitor use management process.

Wildlife Effects

Comment: There must be an analysis of spring bear activity and its relation to winter use. Specifically, extending the snowmobiling season out of West Yellowstone at the request of local business interests may adversely affect the bears. Road clearing activities in early spring may have a similar effect.

Response: We have revised the plan to include an expanded analysis of spring bear activity and the impacts of visitor use based on current information (see p. 39). The winter use plan specifies that snow roads in the parks will begin closing after the first weekend in March and that all snow roads will be closed on or before the third weekend in March. Spring road clearing activities are not a part of the winter use plan. That activity is monitored by park staff to minimize impacts on bear activity.

Comment: Research and monitoring needs must be specified in the plan with priority topics listed.

Response: General guidance on monitoring needs is provided under the discussion of the visitor use management process. Additional details will be developed through implementation of the visitor use management process and revision of the park resource management plans.

Comment: The wildlife section is too vague and should be strengthened by adding a discussion of current sensitive areas and specific steps that will be taken to avoid adverse effects.

Response: The plan includes general policies on how winter use will be managed in sensitive areas to avoid significant impacts on wildlife and it identifies the kinds of measures that will be taken to protect park resources. It also contains a map showing winter wildlife habitat. A determination of specific actions to be taken in particular areas will be developed through implementation of the visitor use management process and revision of the park resource management plans. The final plan has been revised to explain the relationship between it and more detailed implementing actions (see p. 32).

Plowed Road Access and Staging Areas

Comment: The effect of the potential improvement and year-round access of the Chief Joseph Highway between Cody and Cooke City must be analyzed in the plan.

Response: The Council on Environmental Quality's NEPA regulations require the analysis of the cumulative effects of the winter use plan when added to "reasonably foreseeable future actions." We do not see this project as a reasonably foreseeable action. If an environmental document is prepared for the road improvement project, the National Park Service will participate in the process. If it appears that the road improvement will significantly affect this winter use plan, an amendment will be prepared at that time with appropriate NEPA compliance.

Snowmachine Use: Continental Divide Snowmobile Trail (CDST)

Comment: There is no data in the document indicating demand/need for the CDST.

Response: The National Park Service typically analyzes demand for the facilities it proposes. In this case, however, routing the Continental Divide snowmobile trail through the parks is a state of Wyoming proposal. Therefore, the key issue is the consistency of the state's proposal with NPS policies and the potential for impacts on park resources. State and national snowmobile clubs have shown considerable interest in the Continental Divide snowmobile trail, which is an indication of some demand for the trail. The Grand Teton and Rockefeller Parkway segment of the trail will allow those riding the entire trail to pass through the parks, thereby accommodating individuals and commercial tours traveling the total trail length.

Comment: The proposal is a deviation from NPS policy that restricts snowmobile use to unplowed roads and frozen lakes. The plan proposes to change the regulation to allow for new trails.

Response: The proposal to route the trail along the road in Grand Teton is not a deviation from the NPS snowmobile policy. It will not require a waiver or change in the national snowmobile policy or in the national snowmobile regulation that prohibits the designation of any off-road snowmobile trails in the parks.

Comment: The proposed CDST route is not designated under the existing park-specific regulations covering the Rockefeller Parkway and Grand Teton National Park.

Response: The regulations covering specific authorized routes in the two parks will need to be revised to permit the Continental Divide trail, following plan approval and before the first year of operation. This is stated on page 34 in the draft WUP/EA.

Comment: The data presented in the document on the lack of demand for long-distance trails is faulty. A 1988 survey in Montana showed that long-distance snowmobile trails are desirable.

Response: Fewer than 30 percent of the snowmobile groups visiting the three-park area felt a need for either more long (100-250 miles) or more regional (251+ miles) snowmobile trails. The 1988 Montana survey asked snowmobilers to rate selected snowmobile services and facilities. Respondents rated trail maps, loop trails, trail markers, long trails, and groomed trails as all being desirable. This was an entirely different question from that asked of park visitors. The Montana survey did not define how long a long trail was, and more importantly, it did not ask if more such trails were needed.

Comment: The plan is unclear on whether commercial operators will be able to use the CDST.

Response: Commercial operators will be able to travel through the parks on the trail. The plan requires that they use the staging areas near Flagg Ranch or outside the parks to begin or end trips through the parks. The small staging area at Jackson Lake Lodge would be for noncommercial use only. Guided trips would be regulated to protect park resources.

Comment: A multiagency environmental assessment/impact statement is needed to address the cumulative impacts of the entire 370-mile CDST before any decision is made on the park segment. Analysis of the park segment in this EA is a violation of NEPA implementing regulations by segmenting the action.

Response: The National Park Service's evaluation of the effects of the Continental Divide trail on national park lands and resources considered how the use of the trail both inside and outside the park would affect park values. It also considered how the establishment of the trail inside the parks would affect use of adjacent forest lands and communities outside the parks. The analysis identified general effects of snowmobiling on wildlife, snowmobile safety concerns, effects of the Continental Divide trail on area use levels, and regional economic impacts, all of which are applicable to trail segments inside and outside the parks. The National Park Service has concluded that there would be no significant foreseeable environmental effects on national park lands or resources from implementation of the Continental Divide snowmobile trail. The final winter use plan includes provisions and specific actions for trail implementation in the parks. Actual establishment, designation, and full implementation will be subject to funding. If other agencies determine that further analysis of the Continental Divide snowmobile trail *outside* the parks is necessary, the National Park Service will confine participation to sharing the information and analysis from this plan.

Comment: The CDST operation review should be deferred to eight to ten years (rather than three to five years) to provide adequate time for marketing the trail.

Response: Use patterns should be fairly well established in three to five years after the trail is opened through Grand Teton. The existing portions of the trail outside the parks are already being marketed, and marketing would be expected to increase as the Teton portion comes closer to implementation. Waiting eight to ten years could result in supporting an expensive and unnecessary trail operation for an extra five years.

Comment: A roadside trail would impair and derogate the values and purposes of Grand Teton National Park.

Response: This possibility is analyzed in the environmental assessment with the conclusion that the trail would not impair or derogate the values and purposes of Grand Teton National Park.

Comment: The alternative of not plowing Highway 287 as the CDST link should be considered.

Response: This alternative was considered earlier in the planning process and submitted for public review in the alternatives newsletter issued in September 1989. It originally appeared to be a good solution, but it was dropped after further analysis revealed several problems: This alternative would violate the *General Management Plan* for the Rockefeller Parkway and the contract with the Flagg Ranch concessioner, both of which state that Flagg Ranch will continue to be the major staging area for winter trips into Yellowstone. A portion of the route is along US 26, which is a through-route between Riverton and Jackson that must be plowed. Therefore, it would only solve part of the problem and would still require a shared road corridor trail. Not plowing US 287 would significantly increase the length of day trips for visitors traveling to Old Faithful via the south entrance. It would also isolate additional Park Service and concessioner employees at Colter Bay and Jackson Lake Lodge and further isolate employees at Grant Village, where employee morale would decline. This alternative received minimal support during public review of the alternatives newsletter and was dropped from further consideration for these reasons.

Comment: The document fails to describe the location and size of support facilities for the trail.

Response: The support facilities were described on pages 36 and 74 of the draft WUP/EA. Impacts are covered in the "Environmental Consequences" section. The facilities would be located in existing developed areas consistent with approved plans for these areas.

Comment: The National Park Service has recognized that the CDST is likely to significantly change and expand the nature of snowmobile use in the parks.

Response: Quite the contrary, the draft WUP/EA documents the National Park Service's belief that the Continental Divide snowmobile trail would not significantly change and expand use in the parks. The document estimates about 2,000 additional visits per year, or less than 2 percent of the total winter use in the parks. The nature of snowmobile use in the parks would continue to be as a mode of transportation along park roads to access opportunities for viewing park thermal features, wildlife, and scenery.

Comment: The document fails to assess the impacts of widening the bridges and the highway in Grand Teton.

Response: It is anticipated that when the highway is reconstructed in the future, the current road design standards will require some widening of the shoulders and bridges. It is assumed that these standards would accommodate the projected use of the Continental Divide snowmobile trail. However, if additional widening was required, it would be assessed as part of the environmental analysis of the road reconstruction project. The plan has been revised to clarify this intent (see p. 42).

Comment: The document fails to adequately assess the potential for increased snowmobile use and the effects of the roadside trails on natural quiet, wildlife, and other visitors to the parks.

Response: The effects on natural quiet, wildlife, and other visitors have been adequately addressed. The draft WUP/EA analyzed roadside noise and attendant impacts on wildlife in the Oxbow and other areas of Grand Teton and Rockefeller Parkway affected by the Continental Divide trail. Noise from snowmobiles using the roadway would occur within the existing road corridor, where engine and tire/road noise is already generated by visitors' vehicles, large buses, trucks, and snowplows. The effects of increased noise on natural quiet, visitors, and wildlife would not be expected to significantly differ from existing conditions.

Comment: The document fails to adequately assess impacts of cutting trees along Highway 287 for the trail. Statements on pages 34 and 52 in the draft WUP/EA conflict on whether mature trees will be removed. The visual impact will be much greater than one-half acre.

Response: The document has been corrected to consistently reflect the intent of the plan to remove only immature trees (see p. 62). The statement on page 52 in the draft WUP/EA regarding cutting of mature trees was an error. No large mature trees would be cut for the proposed trail. The one-half acre figure describes the area of cleared shrubs and saplings along the entire roadway. This discussion relates to impacts on soil and vegetation, not to impacts on visual quality. The proposed establishment and management of the Continental Divide snowmobile trail will have a minimal impact on visual quality. The route should not even be detectable in summer.

Comment: The WUP/EA fails to assess the CDST impacts to visitor safety.

Response: Safety concerns were addressed in both the plan and analysis sections on pages 34 and 55 of the draft WUP/EA. The plan identifies specific problems and measures proposed to improve safety on the Continental Divide snowmobile trail, and it states that trail operations will be reviewed on an annual basis and changes made to minimize safety problems.

Comment: The discussion of low-water, seasonal bridges at Buffalo Fork and Pacific Creek needs definition. What types of structures are proposed? Can snowbridges be used?

Response: While these bridges have not been designed, they will probably be factory-built lightweight single-span metal frame units with wood decking. They would be 8-10 feet wide and 30-50 feet long. They would be hauled in on a flatbed trailer and installed, used, and removed under low-flow conditions. Snowbridges are not feasible at these stream crossings because of open water during the snowmobile season. Some additional definition has been added to the text of the plan (see p. 42).

Comment: The plan should state that if adverse impacts are experienced, the alternative of trailering snowmobiles will be implemented.

Response: The plan has been revised to state that the visitor use management process will be initiated in Grand Teton concurrently with the operation of the Continental Divide snowmobile trail through the parks. If significant adverse effects are identified, the alternative of trailering will be implemented immediately (see p. 45). The trail will not be moved outside the roadway for safety or any other reason.

Comment: The document shows three alternatives (A, B, and C), but none of them shows the roadside route discussed in the summary.

Response: Several reviewers thought the alternatives were the only possibilities being considered for the trail. The roadway route discussed in the summary is described in detail in the section titled "Proposed Winter Use Plan" on pages 33-36 in the draft WUP/EA. A map showing the proposed route through Grand Teton and the Rockefeller Parkway is on page 35. Three alternatives to the proposed roadway route are described in the "Alternatives" section.

Snowmachine Use: Other Snowmachine Areas

Comment: The National Park Service should use its management flexibility to periodically open other roads in the parks and the frozen surface of Yellowstone Lake, which are used by motor vehicles in the summer but are now closed to snowmachines in the winter.

Response: This would not meet one of the basic purposes of the winter use plan, which is to identify travel routes in the three parks where snowmobile use would be consistent with park management objectives regarding the protection of natural, cultural, scenic, and aesthetic values and the safety of park visitors. The identification of specific snowmobile areas gives the public some assurance of where snowmobiles may be operated in the future. However, management flexibility is preserved to the extent that the plan could be amended, with appropriate environmental analysis and public input, to allow for additional snowmobile routes if conditions changed in the future.

Comment: We take exception to the statement that the snow play activities in the Potholes do not relate directly to the special park values listed in the plan.

Response: The National Park Service views snowmachines as a mode of transportation, similar to cars, whose purpose is to access special park resources, such as thermal areas, wildlife viewing areas, and scenic overlooks. NPS policy and regulations restrict the use of snowmobiles to roads that are used by motor vehicles in the summer. There are no thermal areas or significant wildlife viewing opportunities in the Potholes area, and the spectacular mountain scenery near the Potholes can be readily viewed from nearby park snow roads and plowed roads.

Comment: There are no opportunities to provide additional snow play areas in the adjacent national forest if the Potholes area is closed.

Response: It should not be necessary to establish additional snow play areas in adjacent national forests to accommodate the minimal amount of use displaced from the Potholes (fewer than 500 visits per year). In fact, in recent years when the Potholes did not open because of low snowpack, snowmobilers who would otherwise have used the Potholes went to other nearby areas. In an average year the Potholes area is only open for a portion of the winter, late in the season; therefore, snowmobilers are already using other areas much of the time. The national forests in the greater Yellowstone area have many areas available for snow play, including more than 24,000 acres of identified off-trail areas open to snowmobiles in the Bridger-Teton National Forest alone.

Comment: Closing the Potholes will force additional snowmobile use on adjacent national forests and crucial winter wildlife ranges. Many of these ranges are already experiencing winter recreation/wildlife conflicts.

Response: As discussed above, closing the Potholes would not result in significant increases in snowmobile use on adjacent national forest lands.

Comment: The decline in use in the Potholes is the result of low snow depths and the National Park Service not opening the area, not of a decline in snowmobiler interest.

Response: As part of the analysis for the draft WUP/EA, the National Park Service tested this theory by adjusting use figures to account for years when the area was not open and for years with short seasons. The use per day during available open periods still declined. It may be that snowmobilers are choosing other areas that have better snow and have become more accessible in the last ten years. For example, a well-marked and groomed trail now provides good access into the snow play areas near Togwotee Pass, seasonal restrooms are now provided there in the winter, and several nearby food and lodging services are now open in winter.

Comment: The National Park Service should allow commercial guided tours to operate in Grand Teton National Park.

Response: The plan has been revised to say that authorization may be granted for the national park segment of guided trips along the Continental Divide snowmobile trail. At this time there is insufficient demand to authorize additional commercial snowmobile tours in other areas of Grand Teton National Park (see p. 46).

Snow Coaches

Comment: The plan should propose improved quality and speed of snow coach service to and from the south entrance. Same-day round-trip snow coach service should be provided between Old Faithful and the south entrance.

Response: The winter use plan proposes improving the quality, efficiency, and affordability of snow coach service throughout Yellowstone as technology permits. Frequency of service will be determined through snow coach operating plans prepared jointly by the National Park Service and the concessioner.

Skiing, Snowshoeing, and Hiking

Comment: There should be more groomed ski trails along the summer roads in Grand Teton National Park.

Response: Several groomed ski trails exist near Jackson, so there appears to be a limited need to groom trails in Grand Teton. However, the option of grooming summer roads for ski trails in the park if conditions change is left open by the plan.

Concession Facilities

Comment: The plan should place a freeze on the actual winter capacity (pillow count) in the parks.

Response: The plan states that the current overnight capacity and distribution of overnight use will not be significantly changed.

Comment: Because the document indicates that demand already greatly exceeds supply, it seems that additional lodging may be needed now and should be addressed in the final plan.

Response: Demand exceeds supply only at the Snow Lodge. The Mammoth Motor Inn averages only 50-70 percent of capacity, and Flagg Ranch only 20-50 percent. The winter use survey indicated limited demand for additional overnight accommodations in the park, either in the interior or in areas that are accessible by plowed roads. Because winter operations are expensive and there is continued concern about the potential impacts on wildlife wintering nearby, the National Park Service believes that it would not be appropriate to open up Canyon Village for winter lodging at this time.

NPS Visitor Facilities

Comment: The plan should include heated "picnic" buildings at Old Faithful for commercial tours and individuals.

Response: The National Park Service did open up one of the satellite theaters to picnic use in the winter of 1989-90. The plan identifies the continuing need for warming hut functions at Old Faithful, probably in conjunction with a new or rehabilitated Snow Lodge.

Administrative Support

Comment: There should be an explanation of the need for and type of indoor recreation facilities planned.

Response: Isolation, severe weather, and remote duty stations create the need for indoor recreation facilities. Planned indoor recreation facilities include space for employee gatherings, exercise rooms, and arts and crafts facilities.

Comment: The proposed maintenance facilities should be justified.

Response: The plan has been revised to recognize that all of the existing maintenance buildings in the interior of the park (except at Grant Village) were built for summer season operation and are inadequate to support the maintenance activities that should or could be done in the winter (see p. 52).

Comment: How do you justify the same increase in Yellowstone staffing levels across the board for all alternatives if there is, indeed, a range of alternatives?

Response: As shown in appendix C, the staffing levels for Yellowstone would increase from a total of 51 persons under alternative A, to 55 persons under the plan, to 71 persons under alternative B. The park is currently understaffed and underfunded for winter operations. If funded to provide adequate staffing for the plan, the park would be close to meeting the projected staffing needs for all alternatives, since the levels of required maintenance would be similar regardless of the moderate differences in levels of use among the alternatives. As long as there is a winter operation in Yellowstone, the roads must be groomed, utility systems operated, snowmobiles and other equipment repaired, snow shoveled, and buildings and quarters operated and maintained.

ALTERNATIVES

Comment: The alternatives do not provide an adequate range for decision making; the "no action" alternative should be a no-use alternative to provide a benchmark to assess the impacts of other alternatives.

Response: There is no requirement in NEPA regulations or NPS planning guidelines to assess a no-use alternative. "No action" is defined as a continuation of existing uses, policies, and plans. The act establishing the National Park Service provides for both protection of park resources and their enjoyment by the visiting public. The National Park Service believes that the range of alternatives, from reduced use and facilities to increased use and facilities, is adequate for decision making.

Comment: The alternatives failed to consider the option of no snowmobile use in the park.

Response: Please see the response to the related comment immediately above. To single out one established user type or transportation mode would be even more inappropriate than closing the park to all use.

ENVIRONMENTAL CONSEQUENCES

Comment: The economic impacts section states that the average group spends $782 per group per visit, but a 1988 Montana survey shows nonresident snowmobiler groups spend $2,460 per outing.

Response: The $782 figure used in the analysis is the average expenditure by all visitor groups, including snowmobilers, skiers, and others, regardless of the size of the group. The NPS survey of visitors to the three-park area found that nonresident snowmobilers spent an average of $193 per person in the area of the parks. The 1988 Montana survey found that individual nonresident snowmobilers (visitors from outside Montana) spent an average of $410 in the state during their visit. The disparity between the two figures can be partly explained by the different wording of the questions. The $410 figure is much higher than similar data developed by the University of Wyoming for the state of Wyoming. The results of the NPS winter use survey agree quite closely with those of the Wyoming survey.

Comment: The plan fails to analyze impacts of the existing high level of mechanized recreation.

Response: The no-action alternative analyzes the impacts of existing levels of mechanized recreation, taking into account the projected increases in use over the life of the plan.

Comment: The EA should cover the cumulative impacts on the entire ecosystem, not just the three parks. It does not adequately address the effects of NPS actions on other jurisdictions or the effects actions by others may have on the parks within the greater Yellowstone area.

Response: The National Park Service does not anticipate that this plan added to other past, present, or reasonably foreseeable future actions would result in substantial cumulative impacts either inside or outside the parks. The winter use plan is primarily a rehabilitation plan with no significant increase in capacity and only modest forecast increases in visitor use. The document has been revised to include some additional discussion of regional economic impacts (see p. 68). The potential for unforseen additional impacts in the greater Yellowstone area will be addressed as part of the ongoing planning for adjacent national forests and communities.

Comment: There are a number of proposed structural improvements that are not adequately analyzed in the plan to satisfy NEPA. These include the Snow Lodge replacement, employee housing, recreation centers, maintenance facilities, warming huts, and staging areas.

Response: The plan section has been revised to more clearly identify structural improvements that need further NEPA compliance (see p. 49, 50, 51, 52, 61).

Comment: The document fails to analyze the plan's impacts on the reintroduction of the gray wolf.

Response: The potential reintroduction of the wolf is still being evaluated. No final decisions have been made. Extensive predator-prey modeling indicates that the wolf could likely be restored within the park under existing conditions. Neither the plan nor any of the alternatives would be expected to adversely affect the success of restoration, since the road system and human developments would not significantly change and human uses would be directed away from sensitive wildlife areas.

Comment: There is no documentation for the statement that "lead concentrations on snowpacked roadways and potential impacts on runoff would increase with heavier snowmobile traffic."

Response: The Aune study referred to in the draft WUP/EA found increased lead levels in compacted snow on Yellowstone snow roads in 1980. No study was performed to verify that lead concentrations would increase with increased snowmobile traffic (until older snowmobiles requiring leaded gasoline are replaced by the newer models that use unleaded gasoline). However, it is a reasonable assumption that lead deposition would increase if numbers of leaded-gasoline-burning snowmobiles increased.

Comment: Page 51 of the draft WUP/EA states that soil and vegetation disturbance would occur from access roads. What access roads?

Response: The access roads would be short roads necessary for access and vehicle circulation associated with replacement buildings and parking.

Comment: What research was done to determine that the habituation behavior of Mammoth elk has increased their population to more natural levels? This conclusion is suspect.

Response: The statement that the increase in the number of elk in the Mammoth area may have caused the population to reach more natural levels is followed by the statement that habituation to human use and development may also result in unnatural populations. This question has not been resolved by scientists. However, the phrase "to more natural levels" is not critical to the analysis and has been removed from the final document (see p. 63).

Comment: The only aspect of bald eagle life that is analyzed is nesting. Why is this?

Response: "Nesting territories" as used in the document is meant to include all areas required to support a nesting pair, including foraging areas. The impact analysis discusses foraging areas along roads and rivers.

Comment: The EA should address any effects of the plan on wildlife outside the parks as visitors travel to the parks.

Response: The document has been revised to clarify that it addresses the effects on wildlife outside the parks. Because the plan would not significantly increase visitor use, the impacts from additional visitors traveling to the parks should be minimal (see p. 62).

OTHER/GENERAL

Comment: The document does not reflect coordination between the National Park Service and U.S. Forest Service. The winter use plan should stress the need for regional cooperation in managing winter use. There is no mention of consistency or recognition of forest plans or those of other jurisdictions in the greater Yellowstone area. The document inappropriately places lead responsibility for coordination with the Greater Yellowstone Coordinating Committee. The lead agency has the responsibility for coordination among the various jurisdictions.

Response: We have revised the plan to more adequately reflect the extensive coordination that has occurred during this planning effort and will continue to occur during implementation (see p. 32, 84). The growth in winter use is placing increased demands on facilities, equipment, and staffs in the national parks and also in adjacent national forests and communities. The intent of this plan is to cover only Yellowstone, Grand Teton, and the Rockefeller Parkway. The potential for unforseen additional area impacts will be addressed as part of ongoing planning for adjacent national forests and local communities.

Comment: The plan proposes expanding use and facilities at an unprecedented pace.

Response: This is an incorrect conclusion to draw from the draft plan. Other than the Continental Divide snowmobile trail, the plan proposes no new facilities that would significantly affect use levels. Even with the Continental Divide snowmobile trail, the estimated increase in visitor use, as stated in the draft WUP/EA, would amount to only about 2,000 visits per year, or only 2 percent more than would occur without the plan. While the plan proposes about $17 million for rehabilitation and construction, more than half would be used to replace the existing Snow Lodge facility (less if the facility was rehabilitated), and most of the rest to provide ranger, maintenance, and employee housing facilities needed to support existing activities.

Comment: The winter use plan must receive additional environmental analysis (e.g., environmental impact statement) before adoption.

Response: Some elements of the plan will require additional environmental compliance before implementation (see p. 49, 50, 51, 52, 61). Other elements of the plan are adequately covered by the document.

Comment: Under "Purpose and Need for the Plan" there is no mention of resource protection.

Response: The "Purpose and Need" section has been revised to state that the plan is needed to manage visitor use and to protect park resources (see p. 1).

Comment: The draft plan does not address the growing impacts of winter use on the parks; it accepts the current high level of activity and responds with administrative and facility development.

Response: The National Park Service disagrees with this comment. The plan does address the impacts of additional winter use and includes measures to protect park resources, perform additional research, and provide the necessary staffing, management, and maintenance to address the growing concerns about winter use. Alternative A in the WUP/EA analyzes the possibility of decreased use and facilities.

Comment: The plan is very general and vague, especially on resource protection proposals, wildlife research, and monitoring needs. The plan needs to be much more detailed.

Response: There appeared to be an expectation among some reviewers that the *Winter Use Plan* would be a very detailed operations and research plan. As stated in the scoping newsletter for the project, the *Winter Use Plan* is intended to establish general park policies addressing major winter use management issues. It will guide overall management in the three parks over the next 10-15 years. A detailed plan specifying area-by-area resource protection activities, research and monitoring needs, grooming schedules, and facility designs would soon become out of date. Those specifics will be developed in consistent revisions to park operating plans, superintendent's rules, development plans, and resource management plans, which are updated on a much more frequent schedule. The *Winter Use Plan* is primarily a visitor use plan, not a resource management plan, so the emphasis is on appropriate winter activities and the facilities necessary to support them. The plan has been revised to clarify this purpose (see p. 32, 84).

Comment: A section should be added to the plan dealing with geothermal resources, identifying sensitive areas and specific measures to avoid adverse effects.

Response: The plan has been revised to clarify the NPS commitment to protect sensitive resources (see p. 1). Identifying and protecting geothermal resources is a major year-round concern that does not vary much by season. The plan addresses a uniquely winter-season concern of shoveling snow from boardwalks in thermal areas, and it states that skiers would be restricted where needed to protect geothermal features on pages 31 and 38 in the draft WUP/EA.

Comment: The final plan should address the potential benefits of interagency cooperation in administration of winter recreation in the greater Yellowstone area (e.g., search and rescue, equipment and storage caches, avalanche awareness and safety education programs, avalanche hazard monitoring and advisories, shared use of personnel, and trail signing).

Response: The plan has been revised to more adequately reflect the intent of the National Park Service to cooperate with the U.S. Forest Service in the administration of winter recreation in the greater Yellowstone area (see p. 32, 84).

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Publication services were provided by the graphics and editorial staffs of the Denver Service Center.
NPS D-355A December 1990

☆ U.S. GOVERNMENT PRINTING OFFICE: 1990—573-040/20,084 REGION NO. 8